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ABSTRACT

This collection of working papers contains four papers on varied topics in lintuistic theory. The first paper, "Some Grammatical Correlates of Felicity Conditions and Presuppositions," attempts to show that there is a systematic relationship between what a speaker of a language does in uttering sentences of that language and the syntactic form of those utterances. The second paper is the translation of a Russian article on the typology of causative construction. The article presents the study of a universal classificatory schema which would be appropriate in different languages. The third paper considers why sound change is gradual and discusses the factors and processes involved. The final paper explores the feasibility of the basic idea of natural phonology and considers whether the restrictions on inventories of underlying phonological segments are due to processes rather than abstract hierarchies or morpheme structure constraints. Vowel systems are considered here. (VM)

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WORKING PAPERS IN LINGUISTICS NO. 11

By

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Introduction

This issue of Working Papers in Linguistics treats a variety of topics. Heringer's contribution (also submitted as a Ph.D. dissertation, August, 1971) and Wojcik's translation from Russian concern aspects of syntax and semantics. Schourup's paper (the winner of the O.S.U. 1971 Prize Essay Contest in Linguistics) examines a classic question in historical linguistics. Miller's work (also submitted as an M.A. thesis, June, 1971) explores problems in phonological theory.

With this issue, the publication of Working Papers in Linguistics has been released from ties to departmental grants and is financially self-supporting. Future issues will include collections of papers on single topics (e.g., acquisition), as well as diverse collections like this one. Each number will have its own editor.

Arnold M. Zwicky

Table of Contents

	Page
Introduction	ii
Heringer, James T. Some Grammatical Correlates of Felicity Conditions and Presuppositions	iv
Wojcik, Richard H. Translation from Russian of "Tipologiia kauzativnykh konstrukstii (The Typology of Causative Constructions)" by N. Nedialkov and G. Silnitskii	111
Schourup, Lawrence C. "Why Sound Change is Gradual" .	127
Miller, Patricia D. Some Context-Free Processes Affecting Vowels	136

SOME GRAMMATICAL CORRELATES OF FELICITY

CONDITIONS AND PRESUPPOSITIONS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

James Tromp Heringer, Jr., A.B.

* * * * *

The Ohio State University
1971

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TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
VITA	iii
Chapter	
I. INTRODUCTION	1
II. ILLOCUTIONARY ACTS AND FELICITY CONDITIONS	5
III. INDIRECT ILLOCUTIONARY ACTS	15
IV. QUALIFICATION OF ILLOCUTIONARY ACTS	52
V. PRESUPPOSITIONS	69
VI. INVITED INFERENCES	98
BIBLIOGRAPHY	109

CHAPTER I

INTRODUCTION

This dissertation is an attempt to show that there is a systematic relationship between what a speaker of a language <u>does</u> in uttering sentences of that language and the syntactic form of those utterances. That is to say, through an examination of some of the acts performed by a speaker in producing an utterance we will be able to find an account for the grammar of the utterances used to perform those acts.

Of necessity such an attempt must draw heavily from the work of Austin (1962) and Searle (1969), who both concern themselves with speech acts. In chapter two, we review some of Austin's concepts and Searle's development of them, and in particular, the concepts of illocutionary act and felicity condition.

It has recently been shown that by reference to certain felicity conditions on illocutionary acts, it is possible to explain a certain type of expression of those acts (Gordon and Lakoff, 1971), called <u>conversational implications</u> by Gordon and Lakoff and <u>indirect illocutionary acts</u> here. In chapter three, we examine this process, especially the subset of felicity conditions on which such indirect illocutionary acts may be based, which subset we here define as the subset of <u>intrinsic conditions</u>. It is shown that several of these

intrinsic conditions are not conditions on particular illocutionary acts, but rather general conditions on all illocutionary acts, and that therefore a variety of illocutionary acts may be indirectly performed by use of one such general intrinsic condition. We attempt an explicit account of the process by which such indirect performance can take place.

Intrinsic conditions on illocutionary acts do not only serve as the basis for indirect illocutionary acts; they also are significant in a process called here illocutionary act qualification. In chapter four, we delimit a class of *if* clauses which do not behave in utterances like the antecedents of true conditionals. It is shown that such *if* clauses, named qualifying if clauses, can be explicated only by reference to the illocutionary acts performed by the utterances which contain them. When such reference is made, it turns out that a qualifying *if* clause serves to call into question whether an intrinsic condition on the illocutionary act performed by the utterance holds. Further, the syntactic form of the *if* clause is directly related to the intrinsic condition which it calls into question. We find that only a subclass of intrinsic conditions on illocutionary acts may be the basis for illocutionary act qualification and argue that this subclass is a semantically natural class.

All of the above work concerns itself with illocutionary acts. Speakers uttering sentences also perform propositional acts, i.e., acts of reference and predication (Searle, 1969). Chapter five discusses the relationship between propositional acts and the fact that some presuppositions may be the basis for qualification of

propositional acts through the syntactic medium of *if* clauses which have almost the same properties as *if* clauses used to qualify illocutionary acts. It also turns out not only that some presuppositions may constitute the basis for propositional act qualification, but also that truth conditions on propositional acts may constitute the basis for such qualification. Truth conditions are logically necessary conditions for a propositional act to be true, while presuppositions are necessary conditions for a proposition to have a truth value or to be meaningful.

In chapter six, we find that parallel to indirect illocutionary acts based on intrinsic conditions, there are indirect propositional acts based on truth conditions. Such indirect propositional acts are shown to be identical to what Geis and Zwicky (1971) have called *invited inferences*. The exact process by which invited inferences are generated is discussed and several examples of its application are illustrated. We also attempt an explanation for why presuppo itions may not be the basis for invited inferences.

In short, this dissertation discusses two processes in which conditions on speech acts figure, the process of performing an indirect act and the process of qualifying an act. These processes are discussed with respect to the performance of illocutionary acts and the performance of propositional acts. It is shown that in all cases, it is possible to explain syntactic features of utterances used to perform speech acts by reference to semantic conditions on those acts.

In this dissertation, we consider application of the ideas presented to the study of English syntax only. Because of the elusiveness of the acceptability judgments involved in testing such

application, it would seem necessary to employ native speaker intuitions about a language to extend the analysis presented here to that language. However we would be surprised if it were impossible to extend the analysis to all human languages, since the abstractness and generality of the notions involved make them candidates for semantic universals. This is not to say that all English utterances presented here should be literally translatable into any other language with no change in acceptability judgments, or that all languages have the same syntactic mechanisms for the qualification of acts or the expression of indirect acts. Rather the claim would be that all languages have some process for expressing illocutionary and propositional acts indirectly and some process for qualifying illocutionary and propositional acts, and that these processes would depend on intrinsic conditions on illocutionary acts and presuppositions of and truth conditions on propositional acts in a manner similar to the corresponding processes in English.

By the same token, it is expected that there will be dialectal (or idiolectal) variation in the reaction to the English sentences used as examples here. However, if our hypotheses about the general relationship between speech acts performed with an utterance and the syntax of that utterance are correct, all such variation is to be explained as dialectal idiosyncracies in the use of lexical items and in the application of syntactic rules. This does not render our hypotheses unfalsifiable and therefore empty, since there are types of variation which would count as counterevidence against them, namely, variation that is general and not specific to a particular lexical item or purely syntactic rule.

CHAPTER II

ILLOCUTIONARY ACTS AND FELICITY CONDITIONS

We owe to Austin (1962) the notion of the illocutionary force of an utterance. This is, essentially, the act that one performs in producing a linguistic utterance under the appropriate circumstances. Some examples are:

(2.1) I advise you not to eat that popcorn.

(2.2) I order you to leave the premises.

(2.3) I promise to wash half the dishes.

In appropriate circumstances, if a speaker of English utters (2.1), (2.2), or (2.3), he has in fact performed the act of advising, ordering, or promising, respectively, and (2.1), (2.2), and (2.3) under such circumstances have the illocutionary force of a piece of advice, an order, and a promise, respectively.

In the case of (2.1), (2.2), and (2.3), the main verb of the sentence gives explicit expression to the illocutionary force of the utterance. Such verbs are called explicit performative verbs by Austin. Austin notes that an explicit performative verb must be the main verb of the sentence and must generally be in the 1st person present tense, i.e., must be used performatively, if the sentence is to have the illocutionary force indicated by the verb. Further, hereby may modify only explicit performative verbs and these

only when they are used performatively.

In other cases of performing acts by uttering words, however, there need not be an explicit performative verb present. Thus, (2.4), (2.5), and (2.6) are just as much acts of advising, ordering, and promising when uttered under the appropriate circumstances as (2.1), (2.2), and (2.3) would be.

(2.4) You shouldn't eat that popcorn.

(2.5) Leave the premises.

(2.6) I shall wash half the dishes.

In fact it can be maintained (and will be maintained in this work) that all normal utterances made by speakers of a language have illocutionary force (Searle, 1969) in that all normal utterances perform acts of asserting, apologizing, criticizing, welcoming, etc. (although Austin would distinguish some of these as locutionary rather than illocutionary acts).

Many utterances may also have the effect of performing what Austin calls perlocutionary acts, as well as illocutionary acts. Thus by uttering (2.1) or (2.4) the speaker may alarm his hearer. The speaker then, by performing the act of advising, has secondarily performed the perlocutionary act of alarming.

One difference between illocutionary acts and perlocutionary acts is that while the former are directly involved in the act of producing an utterance, the latter are less central to the act (Austin, 1962). This is evidenced by the fact that, while a given utterance under normal circumstances must be the performance of one and only one illocutionary act, the same utterance may under normal

circumstances be the performance of several perlocutionary acts or perhaps none. If the addressee to whom (2.7) is directed takes it as an informational question while the speaker intended it as a request for action, the addressee has misunderstood.

(2.7) Do you want to open the door?

However, the utterance of (2.7) may inspire, persuade, frighten, etc., the addressee or may have several of these effects on him without it being said that he misunderstands (2.7), independent of whether the speaker intended to produce any of these effects in the hearer.

The question immediately arises whether the illocutionary force of an utterance is a well-defined notion, that is whether for a given utterance there is any way of determining other than by vague intuition what illocutionary act(s) may be performed by the speaker using it and distinguishing such illocutionary acts from the possible perlocutionary acts associated with the utterance. It should be obvious that this question cannot be answered positively without reference to the circumstances surrounding the utterance. One cannot discover, by intuition or any other means, whether (2.8) is a simple statement of fact, a promise, a threat, or a question without knowing something about the speaker's intentions, beliefs, and desires.

(2.8) You are going to leave.

However, given for example that the speaker believes he does not know whether or not the hearer is going to leave, that the speaker believes that the hearer is able to tell him whether he is leaving or not, and that the speaker wants to know whether or not the hearer

is leaving, it is necessarily the case that (2.8) was uttered as a question. This may be tested in the case by noticing that under these circumstances the utterance of (2.8) has the same illocutionary force as the utterance of (2.9), which contains an explicit performative verb, that is, they both count as requests for information.

(2.9) I hereby ask you whether you are going to leave.

It turns out that for every illocutionary act there is a relatively small set of necessary conditions on the intentions, beliefs, desires, and external circumstances of the speaker and addressee who are performing the illocutionary act, that is a set of conditions on the speaker's and addressee's set and setting.[1] These conditions are

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[1]These terms are to be construed only as convenient labels, without psychologistic connotations.

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called <u>felicity conditions</u>. In the case of illocutionary acts in the legal sphere, such as pronouncing a couple man and wife or contracting to form a partnership, the conditions are partly legal in nature and therefore conventional, as noted by Austin (1962). As Searle (1969) would have it, all felicity conditions are conventional, but this appears to be false (David Stampe, personal communication). For example, it seems strange to say that the condition that the speaker requesting something to be done must intend for that thing to be done is conventionalistic rather than naturalistic. If the condition were merely a convention, one would expect to find in some language utterances having illocutionary force almost like that of requesting but lacking the condition on the speaker that he intends to be done

what he 'requests' to be done. However, we will not pursue this matter further here, since our results here do not depend crucially on the conventionality or naturalness of felicity conditions.

Felicity conditions do not only have the function of allowing us to distinguish between the different possible illocutionary forces of an utterance. Their main function is to characterize felicitous illocutionary acts and thereby indicate the various ways that illocutionary acts can go wrong. The necessity for this derives from the fact that the illocutionary force of an utterance is not strictly speaking true or false, unlike the proposition expressed by an utterance. Thus suppose the speaker uttering (2.10) does not own a car.

(2.10) I hereby bequeath you my car.

There is something wrong with his uttering (2.10) then, but it cannot be said that (2.10) <u>as an illocutionary act</u> is false (or true for that matter). (2.10) is odd or misleading under the circumstances, i.e., 'infelicitous'. By distinguishing between the proposition expressed by an utterance and the illocutionary act performed by an utterance, we can account both for the possibility that (2.11) (or the proposition expressed by (2.11)) is false and for the possibility that (2.11) (or the illocutionary act performed by asserting (2.11) is odd if, e.g., the speaker believes that the hearer already knows that his wife is faithful.

(2.11) Your wife is faithful.

Austin distinguished various types of felicity conditions, according to the following taxonomy (from Austin, 1962, pp. 14-16):

(α.1) There must exist an accepted conventional procedure having a certain conventional effect, that procedure to include the uttering of certain words by certain persons in certain circumstances, and further,

(α.2) the particular persons and circumstances in a given case must be appropriate for the invocation of the particular procedure invoked.

(β.1) The procedure must be executed by all participants both correctly and

(β.2) completely.

(γ.1) Where, as often, the procedure is designed for use by persons having certain thoughts or feelings, or for the inauguration of certain consequential conduct on the part of any participants, then a person participating in and so invoking the procedure must in fact have those thoughts or feelings, and the participants must intend so to conduct themselves, and further,

(γ.2) must actually so conduct themselves subsequently.

Austin calls violations of the (α) or (β) conditions misfires while violation of the (γ) conditions are termed abuses by him. In the former case, the illocutionary act involved is said to be void while in the latter it is said to be hollow. Violations of the (α) conditions are called misinvocation (act disallowed) with violations of (α.1) being termed non-plays, and (α.2), misapplications. Violations of the (β) conditions are called miscarriages (act vitiated) with (β.1) violations being called flaws or misexecutions and (β.2) violations being called hitches or non-executions. Among the violations of the (γ) conditions, violations of the (γ.1) type are called insincerities or dissimulations, while those of (γ.2) are called non-fulfillments, disloyalties, infractions, indisciplines, or breaches.

In what follows, we will consider only the (γ.1) type of

felicity condition, those involving beliefs, knowledge, intentions, and desires, i.e., the set of the participants in an illocutionary act, the reason being that these are the ones which have the most interesting syntactic consequences. Before proceeding, however, we must modify Austin's terminology for violations of (γ.1). First of all, the distinctions between (α) and (β) conditions on the one hand and (γ) conditions on the other was made by Austin because it seemed to him that the last type, unlike the first two, could be violated without utterly voiding the illocutionary act, that is, that all felicity conditions involving participant set are not central to the illocutionary act and may be violated without totally vitiating the act. However, there are cases of felicity conditions on the speaker's and addressee's beliefs which are central to the act being performed, in the sense that they cannot be violated without voiding the illocutionary act being performed. For example, in order for a speaker to perform the act of promising, his addressee must prefer the speaker's doing what he is promising to do to his not doing it, and the speaker must believe that the hearer would so prefer. In order to perform the act of threatening, on the other hand, the addressee must believe that he would prefer that the speaker would <u>not</u> do what he is threatening to do, and the speaker must believe that the hearer would so prefer (Searle, 1969). In all other respects, promises and threats seem to have identical felicity conditions. If the felicity conditions made explicit above for promises were both violated, one would not say the speaker has made an insincere promise; one would say he has failed to promise and has

instead threatened something, if he has done anything at all. If only one of the conditions is violated, again, one would not say that an insincere promise had been made, but that no promise had been made.[2] Thus (γ.1) type of felicity conditions may be central

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[2]Alternatively it might be said that promises in general have no felicity conditions involving hearer preferences and that threats are a special subclass of promises set apart from the rest by felicity conditions involving negative hearer preferences. Even if this were so, the illocutionary act of threatening would still have criterial felicity conditions involving speaker and hearer beliefs. A threat to do something the speaker believes the hearer wants him to do is not a hollow threat; it is simply not a threat.

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to the performance of the illocutionary act, and may cause misfiring, or voiding of the act, if they are violated.

A second objection is to Austin's labeling of failure of (γ.1) conditions as insincerities or dissimulations. This terminology leads Austin, Searle (1969), Gordon and Lakoff (1971), and others to call (γ.1) conditions <u>sincerity conditions</u>. However not all failures of felicity conditions on participant set lead to utterances which could be called simply insincere. The case given above, where a (γ.1) condition failure causes voiding of the illocutionary act, is one example. Although it might be argued that in the example given the act was void <u>because</u> the promise or threat was insincere, the act was not performed, and thus could not be called an insincere act.

There are also cases where a (γ.1) type violation causes only abuse and not misfiring of an illocutionary act (i.e., the act is

still performed) but where the abuse results from impoliteness rather than insincerity. Thus, if you request a person to do something that you believe he would object to doing, you are simply not being polite.[3] You can be accused of being insincere in this

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[3]To dispel an obvious objection to the notion of politeness conditions on requests, that politeness or lack of it is not specifically a feature of requests but rather a general phenomenon which need not even be verbal, we point out that what we actually have here is the application to requests of a general politeness condition on acts involving another individual, that that individual not object to any part of a polite act. We will find in chapter three that not only politeness conditions but other sorts of intrinsic conditions may be conditions on acts in general rather than specific to a particular illocutionary act.

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instance only if you use polite phrasing deceptively, but this insincerity is secondary to a violation of what might be called a politeness condition on requests, that the speaker believes his addressee would not object to doing what he is being asked to do.

Sincerity and politeness are in fact parallel modes of behavior, in that, just as there are cases where one is not expected to be polite, such as when speaking to close friends or when angry, there are cases when one is not expected to be sincere, such as when pretending or when engaging in diplomacy. In these cases, sincerity or politeness conditions on illocutionary acts may be violated without causing infelicity. Thus, if a diplomat utters (2.12), his fellow diplomats spend little time questioning his sincerity in uttering (2.12) but consider rather the possible perlocutionary acts performed by such an utterance--e.g. convincing them of the truth of

(2.12), frightening them by suggesting that (2.12) is false, or lulling them into feeling secure--and why the diplomat would want to perform such acts.

(2.12) We have no intention of widening the war in Southeast Asia.

Other examples of felicitous insincere illocutionary acts are rife among the pronouncements of politicians, e.g., (2.13).

(2.13) I am not now, never have been, and never will be a candidate for that office.

We shall call felicity conditions on the participants' set for an illocutionary act (that is, Austin's (γ.1) type of felicity condition) intrinsic conditions on that illocutionary act, and all others, those involving the setting of an illocutionary act, extrinsic conditions. Those intrinsic conditions on an illocutionary act violations of which cause the act to be void will be called essential intrinsic conditions. We will still use the term sincerity condition, but reserve it for those intrinsic conditions which have to do with the sincerity of illocutionary acts, and similarly we will use the term politeness condition for those intrinsic conditions which have to do with politeness of illocutionary acts.

CHAPTER III

INDIRECT ILLOCUTIONARY ACTS

We are now in a position to discuss a grammatical correlate of felicity conditions on illocutionary acts. A basic claim defended here is that by making reference to the class of felicity conditions we have just defined as intrinsic conditions, we can in theory account for all the possible grammatical expressions of a given illocutionary force, and moreover that without reference to intrinsic conditions, such an account would be impossible, We make this claim programmatically, in that we do not intend to discuss here all cases of grammatical expressions of illocutionary acts. We will present some confirming cases which substantiate a general claim about the relationship between intrinsic conditions and expressions of illocutionary acts, one which we know of no clear counterexamples to. Complete validation of the claim must wait, however, until there is a complete working out of the intrinsic conditions on illocutionary acts, a project beyond the scope of this work.

One class of possible alternative expressions of illocutionary force has been discussed by Gordon and Lakoff (1971), who attempt to show that "one can convey a request by (i) asserting a speaker-based sincerity condition [on that request] or (ii) questioning a

hearer-based sincerity condition [on that request]." This is based on the fact that all of the following are possible requests (the examples are Gordon and Lakoff's), and that there exist sincerity conditions on requesting expressable as follows: "if a sincerely requests of b that b do R, then a wants b to do R, a assumes that b can do R, a assumes b would be willing to do R, and a assumes that b will not do R in the absence of the request."

(3.1) a. I want you to take out the garbage.

b. Can you take out the garbage?

c. Would you be willing to take out the garbage?

d. Will you take out the garbage?

On the other hand, sentences similar to (3.1) in form such as (examples Gordon and Lakoff's) (3.2) cannot possibly be used to convey requests because there are no sincerity conditions on requesting like those above by which such sentences as (3.2) could be related to requests.[4]

(3.2.) a. I suppose you're going to take out the garbage.

b. Must you take out the garbage?

c. Are you likely to take out the garbage?

d. Ought you to take out the garbage?

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[4]It should be pointed out that since it is not obvious that there should be any formal characterization of requests (although such a claim is defended in Gordon and Lakoff (1971) and here), it is not clear why anyone would expect sentences like (3.2) to convey requests any more than he would expect "Salt is NaCl." to (David Stampe, personal communication).

Gordon and Lakoff discuss under what circumstances sentences like (3.1) can convey requests. They state that (i) the utterance

must not have its literal meaning, (ii) elements of the conversational context and conversational postulates, in the sense of Grice (1968), must entail the request. Conversational postulates are said to be parallel to meaning postulates and to include among others (3.3), where the capitalized words are intended to represent semantic units.

(3.3) a. SAY (a,b, WANT (a, Q)) → REQUEST (a,b,Q)

b. ASK (a,b, CAN (b,Q)) → REQUEST (a,b,Q)

In other words, sincerity conditions on requests can be the basis for conversational postulates, which explains how some utterances which can be literally taken as assertions or informational questions can convey requests.

When we attempt to extend Gordon and Lakoff's analysis to other illocutionary acts and to other felicity conditions on illocutionary acts, we find that, while it appears to be essentially correct, modifications must be made in the original formulation of the analysis.

First of all, it is fairly obvious that when Gordon and Lakoff speak of sincerity conditions, they are in fact referring to what we have called intrinsic conditions. This can be seen even with one of the purported sincerity conditions on requests given above, that the speaker wants the addressee to do R if he requests him to do R. If A requests B to do R and at the same time A has no desire for B to do R, it may be said that A is being insincere and even that A has made an insincere request. However, as indicated in the last chapter, this is not what is at issue in Austin's framework. At issue is whether requests which are insincere in this manner still

count as real requests, the way the assertion of something one does not believe, that is, an insincere assertion, still counts as a real assertion. This issue can be settled by considering (3.4) and (3.5), which seem to indicate that, while requesting something one does not want can be grounds for saying the request was misexecuted and void, asserting something one does not believe cannot be grounds for saying that the assertion was misexecuted and void.

(3.4) He requested me to help him, but since it turned out that he didn't have any desire for me to help him, it wasn't a real request.

(3.5) *He stated that Mary was his wife, but since it turned out that he didn't believe she was his wife, it wasn't a real statement.

Furthermore, while (3.6) conveys a request, it cannot be maintained that a condition on the sincerity of requests is that the speaker believe that the hearer would not object to doing what he is being requested to do.

(3.6) Would you mind taking out the garbage?

This is obviously a condition on the politeness of requests which derives from a general condition on polite acts.

Thus it seems that Gordon and Lakoff's analysis is actually an analysis of the conveyance of illocutionary acts by the use of intrinsic conditions. Another objection to their analysis is that they make it appear that the intrinsic conditions on a given illocutionary act are unrelated to the intrinsic conditions on any other illocutionary act, or, if they are related, that the relationship is accidental. But this is not the case. For example, consider the intrinsic conditions at the right side of the arrows in (3.7).

(3.7) a. A requests B to do R → A believes B is able to do R

b. A offers to do R for B → A believes A is able to do R

c. A asserts P to B → A believes that B is able to come to believe (or to know) P

d. A asks B P → A believes that B is able to tell A P (where P is an incompletely specified proposition or the disjunction of a proposition and its negation)

All of these intrinsic conditions may be used to convey illocutionary acts, as in (3.8).

(3.8) a. Can you answer the phone? (request)

b. $\left\{\begin{matrix}\text{Can I}\\ \text{I can}\end{matrix}\right\}$, help you with the dishes $\left\{\begin{matrix}?\\ .\end{matrix}\right\}$, (offer)

c. Can you believe that Irv is a virgin? (assertion)

d. Can you tell me what time it is? (question about the time)

In Gordon and Lakoff's system, the conversational postulates justifying the indirect illocutionary acts in (3.8) would probably come out something like those in (3.9).

(3.9) a. ASK (a,b, CAN (b,Q)) → REQUEST (a,b,Q)

b. ASK (a,b, CAN(a,Q)) → OFFER (a,b,Q)
or SAY (a,b, CAN (a,Q)) → OFFER (a,b,Q)

c. ASK (a,b, CAN (COME ABOUT (KNOW (b,Q)))) → SAY (a,b,Q)

d. ASK (a,b, CAN (b, SAY (b,a,Q))) → ASK (a,b,Q)

Instead of setting up four different intrinsic conditions and basing five different conversational postulates on them to account for the illocutionary acts conveyed with utterances like those in (3.8), an account which captures the underlying relatedness of the intrinsic conditions in (3.7) and illocutionary acts conveyed by them seems

necessary.

The most direct way to achieve such an account is to postulate one general intrinsic condition on illocutionary acts having to do with participant ability. A preliminary statement of this condition is given in (3.10).

(3.10) The performer of an illocutionary act K believes that the performers of the volitional acts involved in the carrying out of K are in fact able to perform those volitional acts.

The volitional acts referred to in (3.10) are those acts denoted by a subclass of the non-stative verbs and adjectives (Lakoff, 1966), namely the pro-agentive verbs discussed in Lee (1970) <u>when they occur with agents</u>. Thus, while (3.11a) is ambiguous between an agentive reading where John intentionally frightened the baby and a non-agentive reading where John frightened the baby, perhaps by accident, (3.11b) <u>understood as a request</u> does not show this ambiguity.

(3.11) a. John frightened the baby.

b. Can you frighten the baby?

As an informational question about the addressee's abilities, however, (3.12) is ambiguous as to agentiveness.

(3.12) Can you frighten the baby by accident?

(3.12), unlike (3.11b), cannot be understood as a request but only as an informational question (unless one is talking about frightening the baby accidentally on purpose). The reason (3.12) cannot be understood as a request is that the phrase <u>by accident</u> forces a non-agentive interpretation on the sentence, thus making the act denoted by <u>frighten</u> non-volitional. Since the act is non-volitional, the

ability condition given in (3.10) cannot be used to perform an indirect illocutionary act.

Given an intrinsic condition such as that in (3.10), the next thing we need to know is how such a condition is used to perform illocutionary acts indirectly. Modifying Gordon and Lakoff's (1971) account somewhat, we shall say that:

(3.13) An illocutionary act K is performed indirectly by asserting that an intrinsic condition on K holds or by questioning whether an intrinsic condition on K holds.[5]

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[5]Asserting an intrinsic condition to perform K is not interchangeable with questioning an intrinsic condition to perform K. Gordon and Lakoff (1971) would have it that assertion is used when the agent is first person and questioning is used when the agent is second person, but this is wrong, as shown by the possible indirect acts given in (a) and (b).

(a) Can I help you? (offer)
(b) You can take out the garbage. (command)

The distinction between assertion and questioning will be discussed further below.

For intrinsic conditions with more than one possible application to a given illocutionary act--such as that in (3.10), which refers to all volitional acts needed to carry out K--an illocutionary act is performed indirectly by asserting that a specific application of the intrinsic condition holds or by questioning whether a specific application holds. In the case of (3.10), this means asserting that a participant in the illocutionary act has the ability to perform one of the volitional acts necessary to the carrying out of the illocutionary act or questioning whether such is the case.

To illustrate these ideas, we need an analysis of illocutionary acts which makes explicit the volitional acts involved. A rough attempt at such an analysis is given in (3.14) for some illocutionary acts.

(3.14) a. Assertions, Granting of Permission

SAY (S,H,P)

SAY (S,H, (ALLOW (S, (DO (H,A)))))

b. Questions

IMPERE[6] (S,H, (SAY (H,S,p)))

c. Promises, Offers

PROMOFF[6] (S,H, (DO (S,A)))

d. Commands, Requests, Asking Permission

IMPERE (S,H, (DO (H,A)))

IMPERE (S,H, (ALLOW (H, (DO (S,A)))))

---

[6]IMPERE is a representation of the semantic content common to the explicit performative verbs command, order, request, ask (that), and others like them, as well as of the illocutionary force of many imperatives. The term is from Ross (1970), as is the analysis of questions. A similar representation of the semantic content common to offering and promising is labelled by PROMOFF.

The representations in (3.14) are intended to be semantic representations and the items in capital letters are to be taken as semantic primes. These representations are very schematic. It is highly probable that the posited semantic primes are actually semantically complex, but, we hope, not in ways which bear on the argument. S and H are labels for the speaker and addressee of the illocutionary

act. A is an arbitrary volitional act, and P is an arbitrary proposition.

Before continuing, it should be noted that embodied in the representations in (3.14) is the claim that promises and offers are not two different types of illocutionary acts, but rather two realizations of the same illocutionary act, and that commands and requests are similarly related. In fact, we wish to claim that requests and offers are just deferential commands and promises.

One piece of evidence for this claim is the fact that while there are explicit performative verbs for the illocutionary acts of commanding and promising, there are no explicit performatives for the illocutionary acts of requesting and offering (David Stampe, personal communication). This is shown by the fact that (3.15b) is unacceptable and that (3.15a) is not really a request, but is rather an order, as shown by the unacceptability of this utterance with following please.[7]

(3.15) a. I (hereby) request you to leave the premises (*please).

b. *I (hereby) offer to help you fix your flat tire.

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[7]Sadock (1970) considers the acceptability of a following please to be a test for true imperatives. However, this constitutes a confusion of form and function, since imperatives used as commands cannot be followed by please, as in (a), and yet one would not want to claim that imperatives used as commands are not true imperatives.

(a) *Shoulder arms, please.

Gordon and Lakoff (1971) consider the acceptability of a following please to be a test for illocutionary requests, the view adopted here.

Of course, the lack of explicit performative verbs for requesting and offering does not in itself show anything, since there are other illocutionary acts, such as insulting someone, which do not have an associated explicit performative verb (Austin, 1962), as shown by (3.16).

(3.16) *I hereby insult you be calling you a rapscallion.

However, there is also the strongly felt semantic (or pragmatic) relationship between the acts of promising and offering and commanding and requesting. To capture this relationship, we need only say that they are basically the same acts, and that explicit performative verbs cannot be used in deferential situations. (This of course leaves the unacceptability of (3.16) a mystery.)

Another claim made in (3.14) is that utterances used to grant permission are a type of assertion rather than a type of promise, say, or a type of illocutionary act unrelated to the others we have given. The reason for making this claim is that later we shall come across cases of indirect illocutionary acts performed with utterances which are literally grants of permission and we shall then need this claim to arrive at an explanation of them. Since we have hypothesized that indirect illocutionary acts are performed by asserting or questioning that intrinsic conditions on those acts hold, we would expect only literal assertions or questions to be used to perform indirect illocutionary acts. If grants of permission are assertions, we can explain how these grants of permission can be used to perform indirect acts. If, on the other hand, such an analysis is wrong, then such illocutionary acts will remain unexplained.

Given the representations in (3.14) and our hypothesis about how the intrinsic condition on ability may be used to form indirect illocutionary acts, we would expect the following to be indirect illocutionary acts (with A and P instantiated):

(3.17) Assertions, Granting of Permission

a. Can I say that Harry is a fool?

I can say that Harry is a fool.

b. I can allow you to leave.

c. You can leave.

Questions

d. Can I ask you what you plan to do?

e. Can you tell me what you plan to do?

You can tell me what you plan to do.

Promises, Offers

f. Can I offer you my help?

I can offer you my help.

g. Can I help you?

I can help you.

Commands, Requests, Asking for Permission

h. Can I ask you to help me?

I can ask you to help me.

i. Can you help me?

You can help me.

j. Can I ask you to allow me to leave now?

k. Can you let me leave now?

l. Can I leave now?

However, there is a problem here, in that some of the utterances in (3.17) may be paraphrased using may for can and others using be able to for can as in (3.18):

(3.18) Assertions, Granting of Permission

a. May I say that Harry is a fool?

*Am I able to say that Harry is a fool?

?I may say that Harry is a fool.

I am able to say that Harry is a fool.

b. *I may allow you to leave.

I am able to allow you to leave.

c. You may leave.

You are able to leave.

Questions (about plans)

d. May I ask you what you plan to do?

*Am I able to ask you what you plan to do?

e. *May you tell me what you plan to do?

Are you able to tell me what you plan to do?

You may tell me what you plan to do.

*You are able to tell me what you plan to do.

Promises, Offers

f. May I offer you my help?

*Am I able to offer you my help?

*I may offer you my help.

I am able to offer you my help.

g. May I help you?

Am I able to help you?

g. (continued)

*I may help you.

I am able to help you.

Commands, Requests, Asking for Permission

h. May I ask you to help me?

*Am I able to ask you to help me?

I may ask you to help me.

I am able to ask you to help me.

i. *May you help me?

Are you able to help me?

You may help me.

You are able to help me.

j. May I ask you to allow me to leave now?

*Am I able to ask you to allow me to leave now?

k. *May you let me leave now?

Are you able to let me leave now?

l. May I leave now?

Am I able to leave now?

What appears to be the case here is that, even though illocutionary acts are themselves volitional acts, one cannot question one's ability to perform such acts as an indirect way of performing those acts, as shown by (3.18 a, b, d, h, j). Put another way, one cannot question one's ability to perform an illocutionary act and at the same time perform that act. One can however assert one's ability to perform the act and at the same time perform it, as shown by (3.18 a, d, h). This may be accounted for by modifying (3.13), the formulation

of how indirect illocutionary acts are performed, as in (3.19).

(3.19) An illocutionary act K is performed by asserting that an intrinsic condition on K holds or by questioning whether an intrinsic condition on K which is a matter of belief only (not knowledge) holds.

Since when you perform an illocutionary act you know that you are performing it, you must also know that you have the ability to perform it. Thus it is not a matter of belief only that you have the ability to perform the act and you cannot question this ability to perform an indirect illocutionary act.

To account for the illocutionary force of the utterances in (3.17) where <u>may</u> is possible (grouped together in (3.20) below), we need to appeal to another intrinsic condition.

(3.20) <u>Assertions, Granting of Permission</u>

a. May I say that Harry is a fool?

b. You may leave.

<u>Questions</u>

c. May I ask you what you plan to do?

d. You may tell me what you plan to do.

<u>Offers</u>

e. May I offer you my help?

f. May I help you?

<u>Commands, Requests, Asking Permission</u>

g. May I ask you to help me?

h. You may help me.

i. May I ask you to allow me to leave?

j. May I leave now?

Without becoming involved in a detailed analysis of may, we can at least note that all of the utterances in (3.20) have paraphrases with be allowed to for may and in fact that they all are literally cases of asking and giving permission. This suggests that we need an intrinsic condition or conditions having to do with permission on which to base illocutionary acts. A candidate for such an intrinsic condition is given in (3.21).

(3.21) In settings where he is being deferential to the addressee, the performer of an illocutionary act K believes that he has permission of the addressee to perform the volitional acts involved in the carrying out of K. i.e., that the addressee will allow him to carry out these acts.[8]

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[8]It is probably the case that the politeness condition discussed in chapter two, that the speaker believes that the addressee would not mind performing the volitional acts involved in the illocutionary act, is actually a deference condition related to this one.

Now questioning whether this intrinsic condition holds, i.e., questioning whether one is allowed to carry out some volitional act involved in the illocutionary act, amounts to the same thing as asking permission to carry out that volitional act, by our analysis of asking permission in (3.14). Thus we can explain how a request for permission is used to perform indirect illocutionary acts without modifying our account of how illocutionary acts are performed. One modification is needed, however, to account for the fact that the assertions in (3.22) cannot be used to perform the illocutionary acts that their question counterparts can.

(3.22) a. I may say that Harry is a fool.

b. I may ask what you plan to do.

c. I may offer you my help.

d. I may ask you to help me.

A superficial explanation would be that may in the permission sense takes 1st person subjects only in questions and takes 2nd person subjects only in assertions. However, this explanation is inadequate since we are not dealing with a fact about the morpheme may here but with a fact about permission in general. Thus (3.23) is exactly parallel to (3.22).

(3.23) a. You will allow me to say that Harry is a fool.

b. You will allow me to ask you what you plan to do.

c. You will allow me to offer you my help.

d. You will allow me to ask you to help me.

A deeper explanation for the facts in (3.22) and (3.23) is based on the fact that there seems to be a contradiction between a speaker's being deferential to an addressee and his asserting that he has the addressee's permission to perform a volitional act. This contradiction makes it impossible for an indirect illocutionary act based upon an assertion of the intrinsic condition in (3.21) to go through.

The illocutionary acts in (3.20) which are expressed with assertions may be accounted for by (3.24).

(3.24) The performer of an illocutionary act K believes (and, in fact, knows) that the addressee has his permission to perform the volitional acts involved in K, i.e., that he will allow the addressee to carry out those acts.

This intrinsic condition, unlike (3.20), does not involve deference, but does involve knowledge. As we saw before, in the discussion of (3.19), this disallows indirect illocutionary acts by questioning. When the intrinsic condition is asserted, i.e., when the speaker asserts that he allows the addressee to perform some volitional act involved in K, this amounts to the same thing as granting permission to the addressee to perform the volitional act, thus accounting for the literal interpretation of utterances like (3.25) as granting of permission.

(3.25) You may tell me what you plan to do.

Since the intrinsic condition in (3.24) does not involve deference, the antideferential character of indirect illocutionary acts performed by utterances like (3.25) still needs to be accounted for. This is easily explained by considering that (3.25), <u>taken as a question</u>, amounts to the assertion of a logically necessary truth, since it is logically impossible to ask a question of someone without being willing to allow him to answer. It is part of the meaning of the notion illocutionary act that in performing it, permission is granted to the addressee to perform his parts of it, which is to say that (3.24) is an essential condition on illocutionary acts (of which more will be said in chapter four).

It is instructive to compare this case of the assertion of a logically necessary truth with another case, given in (3.26) (Searle, 1969, p. 124), discussed in Gordon and Lakoff (1971).

(3.26) Either John is a communist or he isn't.

By asserting (3.26), the speaker commits himself to the belief that

either member of the disjunction may be true and thus implies that it is possible that John is a communist. Since (3.26) is on the surface tautological and thus empty, the implication is all that is meaningfully conveyed by the sentence.

Utterances like (3.25) (repeated below) seem to be similar to (3.26) not only in their logical necessity but also in the fact that they imply the possibility that they could have been false. That is, with (3.25) taken as a question, it implies that the speaker might not have given the addressee permission to answer the question, and further that the speaker is in a position to deny permission for the addressee to answer the question.

(3.25) You may tell me what you plan to do.

Similarly with (3.27), taken as an order, there is an implication that the speaker is in a position to grant permission for the addressee to carry out the speaker's desires.

(3.27) You may help me.

In such cases, the speaker's permission is the hearer's command.

We have so far discussed cases of indirect illocutionary acts based on the assertion or questioning of intrinsic conditions involving belief and knowledge. There also appear to be cases of indirect illocutionary acts on intrinsic conditions concerning speaker intentions.

Some examples of such intrinsic conditions are as follows: When the speaker (S) asserts a proposition (P) to an addressee (H), it is S's intention to cause H to believe P. When S asks H P, it is S's intention to cause H to tell S P. When S promises or offers

to do a volitional act (A), it is S's intention to do A. When S commands or requests H to do A, it must be his intention to cause H to do A. These conditions on speaker intention appear at the right side of the arrows below.

(3.28) a. SAY (S,H.P) → INTEND (S, CAUSE (S, BELIEVE (H,P)))

b. ASK (S,H.P) → INTEND (S, CAUSE (H,SAY (H,S,P)))

c. PROMOFF (S,H,DO (S,A)) → INTEND (S,DO (S,A))

d. IMPERE (S,H,DO (H,A)) → INTEND (S,CAUSE (S,DO (H,A)))

These conditions cannot be used by themselves to perform indirect illocutionary acts. This is shown, for example, by the fact that the utterances in (3.29) cannot be used as commands or requests (although (3.29b) may have the perlocutionary <u>effect</u> of getting the addressee to take out the garbage).

(3.29) a. Will I $\left\{\begin{matrix}\text{cause}\\\text{get}\end{matrix}\right\}$ you to take out the garbage?

b. I will $\left\{\begin{matrix}\text{cause}\\\text{get}\end{matrix}\right\}$ you to take out the garbage.

However, the utterances in (3.30) can be taken as indirect illocutionary acts.

(3.30) <u>Assertions</u>

a. Can I get you to believe that I wouldn't hurt a fly?

b. Can you believe that Irv is bald?

<u>Question</u>

c. Can I get you to tell me what time it is?

<u>Request</u>

d. Can I get you to help me?

Apparently these illocutionary acts are examples of the ability intrinsic condition applied to the intentional intrinsic conditions on the acts in question. For example, the speaker in (3.30b) by questioning the addressee's ability to believe a proposition P conveys indirectly his intention to cause the addressee to believe P, and by conveying this intention conveys P at second remove. It seems that this method of performing indirect illocutionary acts is possible only when the ability condition is applied to the intention conditions by questioning, since, for example, the assertions corresponding to the questions in (3.30) cannot be used to perform the respective indirect illocutionary acts. We have no explanation for this restriction. Doubly indirect illocutionary acts like the ones we have been discussing need more research.

We have so far discussed indirect illocutionary acts based on general intrinsic conditions concerning ability and permission. There are other general intrinsic conditions which can be used to convey a variety of indirect illocutionary acts. Some of these are as follows:

(3.31) The performer of an illocutionary act K believes that no acts involved in the performance of K are already performed.

(3.32) The performer of K believes that all acts involved in the performance of K (save for K itself) will occur in the future. (In the case of acts involved in the performance of K which are acts performed by the performer of K, this intrinsic condition is a matter of desire rather than of belief. cf. (3.33))

(3.33) The performer of K desires that all acts involved in the performance of K should take place.

(3.34) In settings where he is being deferential to the addressee, the performer of K believes that the addressee is willing for all acts involved in the performance of K to take place, i.e., that the addressee does not object to any of the acts involved in K occurring.

(3.35) In less formal settings where he is being deferential to the addressee, the performer of K believes that the addressee desires that all acts involved in the performance of K take place.

The sorts of illocutionary acts that may be performed using these intrinsic conditions are illustrated by the following sentences; The sentences in (3.36) are based on the condition that the speaker believes that no part of the illocutionary act is already performed.

(3.36) Assertions, Granting Permission

a. Have(n't) I (already) said that John is coming tomorrow?

b. Did(n't) I say that John is coming tomorrow?

c. Did(n't) you know that John is coming tomorrow?

d. Do(n't) you (already) know that John is coming tomorrow?

e. Have(n't) I (already) told you you may go?

f. I haven't said yet that John is coming tomorrow.

g. You don't know yet that John is coming tomorrow.

h. I haven't yet told you you may go.

Questions

i. Have(n't) I (already) asked you when you'll be done?

j. Did(n't) I ask you when you'll be done?

k. Have(n't) you (already) told me when you'll be done?

l. Did(n't) you tell me when you'll be done?

m. Have(n't) you (already) let me know when you'll be done?

n. Did(n't) you let me know when you'll be done?

o. Do(n't) I (already) know when you'll be done?

p. Have I (already) gotten you to tell me when you'll be done?

q. I haven't yet asked you when you'll be done.

r. You haven't yet told me when you'll be done.

s. You haven't yet let me know when you'll be done.

t. I don't know yet when you'll be done.

u. I haven't yet gotten you to tell me when you'll be done.

Promises, Offers

v. Did(n't) I offer to help you?

w. Has(n't) anybody helped you?

x. I haven't yet offered to help you.

y. Nobody has yet helped you.

Commands, Requests

z. Have(n't) I (already) asked you to close the door?

aa. Have(n't) you (already) closed the door?

bb. I have(n't) yet asked to close the door.

cc. You haven't yet closed the door.

The sentences in (3.37) are based on the condition that the speaker believes that all acts involved in the illocutionary act (save for the illocutionary act itself) will occur in the future.

(3.37) Assertions, Granting Permission

a. Will you believe that my dog has fleas?

b. I will allow you to close the door.

Questions

c. Will (Won't) you tell me how you knew that?

d. Will (Won't) you let me know what your name is?

e. You will tell me how you knew that.

f. You will let me know what your name is.

g. I will know how you knew that.

Promises, Offers

h. I will help you.

i. I will climb that mountain.

Commands, Requests, Asking Permission

j. Will (Won't) you fix that leak?

k. Will (Won't) you allow me to see her?

l. You will fix that leak.

The sentences in (3.38) are based on the condition that the speaker desires that all acts involved in the performance of the illocutionary act should take place.

(3.38) Assertions

a. I want to say that this is a proud moment for me.

b. I want to tell you that you're the greatest.

c. I want you to know that it wasn't personal.

Questions

d. I want to ask you why you did it.

e. I want you to tell me where the stash is.

f. I want to know what you think of me.

Promises, Offers

g. I want to offer to help pay for that.

h. I want to help you with the dishes.

i. I want to promise it will never happen again.

Requests, Asking Permission

j. I want to ask you to close the door.

k. I want you to close the door.

l. I want to ask you to let me leave now.

m. I want you to let me leave now.

n. I want to leave now.

The sentences in (3.39) are based on the deference condition that the speaker believes that the addressee is willing for all parts of the illocutionary act to be performed.

(3.39) Assertions

a. Would you mind if I said that the meat's overdone?

b. Is it alright with you if I say that the meat's overdone?

c. Do you mind knowing that John is unfaithful?

d. Do you mind my letting you know that John is unfaithful?

Questions

e. Do you mind my asking how many more children you're going to have?

f. Would you (be so kind as to) tell me where she is?

g. Will you (be kind enough to) let me know who you think you are?

h. Do you mind my knowing what you're going to do?

Offers

i. Would it be alright if I offered to help you?

j. Would you mind my helping you?

Requests, Asking Permission

k. Would you object to helping me?

l. Would it be alright if I got you to help me?

m. Do you mind my asking you to help me?

n. Would you (be kind enough to) let me leave?

o. Is it OK if I leave you?

The sentences in (3.40) are based on the informal deferential condition that the speaker believes that the addressee desires that all parts of the illocutionary act be performed.

(3.40) Assertions

a. Do you want me to tell you what I think? You're nuts.

b. Do you want to know what I think? The butler did it.

Questions

c. Do you want to tell me what you did with the body?

d. Do you want to let me know what you did with the body?

Requests, Asking for Permission

e. Do you want to close the door?

f. Do you want to give me permission to leave?

Several points should be noted about the intrinsic conditions in (3.31)-(3.35), and how they may be used to perform illocutionary

acts. First of all the formulations given are only intended as an attempt at representing the intrinsic conditions and are not to be construed as the last word. One inadequacy is that (3.31) and (3.32) obviously do not contain two independent intrinsic conditions, but should probably be analyzed as two aspects of the same condition. This is made difficult, however, by the fact that part of the intrinsic condition in (3.32) is a matter of desire, while (3.31) is totally a matter of belief. This is evidenced by the impossibility of conveying an indirect act by questioning (3.32) when the performer is the speaker, and by the possibility of doing so by questioning (3.31). (3.41) illustrates this.

(3.41) a. Do I already know what this is?

b. I don't yet know what this is.

c. I <u>will</u> know what this is.

d. Will I know what this is?

All the utterances in (3.41) may be taken as questions about the identity of something, except for (3.41d). This is explained if knowing the answer in the future is not a matter of belief, given our formulation of how to perform indirect illocutionary acts with intrinsic conditions (cf. (3.19)). It is called a matter of desire here on the basis of the relationship between (3.32) and (3.33).

Another similar inadequacy in the formulations given is that (3.34) and (3.35) should not be considered two different intrinsic conditions. There are only two differences between (3.34) and (3.35). The first is that (3.35) is used in less formal settings than (3.34) to perform indirect illocutionary acts and the second is that (3.34)

involves a speaker belief about what his addressee would not object to, i.e., would not not desire, while (3.35) involves a speaker belief about what his addressee would desire. In short, the speaker belief in (3.34) is simply a weakened version of the speaker belief in (3.35). This fact cries out to be related to the formality difference between (3.34) and (3.35). It might be said, for example, that in a more formal setting, the speaker is more distant from his addressee and, because of this, makes fewer and weaker assumptions about the addressee's beliefs. However, not enough is known about what constitutes formality to allow more than speculation.

A second point concerning the intrinsic conditions given in (3.31) - (3.35) as well as the ones discussed earlier is that when they are questioned to perform an indirect illocutionary act, the question may be either positive or negative, as shown by (3.42) and some of the sentences in (3.36) - (3.40).

(3.42) a. Can you help me? (request)

b. Can't you help me? (request)

c. Do you want me to help you? (offer)

d. Don't you want me to help you? (offer)

This is the case even with the intrinsic condition in (3.31), which itself is negative, as (3.43) shows.

(3.43) a. Have I already told you that John eats brown rice?

b. Haven't I already told you that John eats brown rice?

c. ?Haven't I not already told you that John eats brown rice?

It appears that whether or not the intrinsic condition is itself negative, the possible realizations of its use as an indirect illocutionary act remain the same. This is not true for cases of assertion of intrinsic conditions, as shown in (3.44).

(3.44) a. You can help me. (request)

b. You can't help me. (not a request for help)

c. I have already told you John eats brown rice. (not an assertion of tell's complement)

d. I haven't yet told you John eats brown rice. (assertion of tell's complement)

The difference between the relationship between positive and negative questions and the relationship between positive and negative assertions can probably be used to explain this. (See Schachter, et al., 1968, for a discussion of positive and negative questions.)

The final point concerning the intrinsic conditions above concerns those intrinsic conditions which are used in deferential situations. As with (3.21), (3.34) and (3.35) cannot be asserted to perform indirect illocutionary acts, but can only be questioned, as we find in (3.45).

(3.45) a. Do you mind stopping the car? (request)

b. You don't mind stopping the car. (not a request)

c. Do you want me to wash the dishes? (offer)

d. You want me to wash the dishes. (not an offer)

As was the case with (3.21), we can explain this by appealing to the contradiction that exists between being deferential to an addressee and at the same time asserting that the addressee does not mind or

actively desires that a part of the illocutionary act be performed.

This leads to the following generalization:

(3.46) An illocutionary act K is performed in a deferential situation by questioning (not by asserting) that an intrinsic condition on K involving deference holds.

This generalization is explained by the following;

(3.47) One cannot perform an illocutionary act by asserting an utterance the assertion of which contradicts any aspect of the illocutionary act in question.

From examination of the examples of indirect illocutionary acts we have given, it appears that performing such acts with a question is in general more deferential than performing them with an assertion. This may be because questions somehow make the act seem more conditional and thus subject to veto by the addressee. This conditionality may be emphasized by the use of the subjunctive for indicative modal verbs as in (3.48), in which case the deferentiality of the act is also increased.

(3.48) a. Could I ask you when you are leaving?

b. Would you take out the garbage?

c. Might I help you?

Such use of the subjunctive for indicative modals is not found in assertions used to perform indirect illocutionary acts.[9]

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[9]The use of subjunctive for indicative in indirect illocutionary acts is treated in Sadock (1970) as the use of past tense modals for present tense modals. While there are sentences in English which seem to contain past tense modals, such as (a) and (b), the sentences which we have been discussing and those which Sadock discussed do not seem to be of this type.

(a) It used to be that John could leap tall buildings in a single bound.
(b) When I was young, my mother would tuck me into bed.

It may be instructive at this point to compare the account given here of indirect illocutionary acts with the account provided for some of them by Sadock (1970). Sadock discusses a class of utterances which have the form of questions but which are used imperatively and to some extent behave syntactically like true imperatives. These utterances he calls whimperatives.[10] Some of

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[10] In another paper (Sadock, 1971), Sadock also discusses a class of superficial questions which are taken as assertions, which he calls queclaratives. Examples are given in (a) and (b), with the assertions conveyed by them given in (a') and (b') respectively.

(a) Who gives a damn about Turing machines?
(a') Nobody gives a damn about Turing machines.
(b) Is being a middle executive type easy?
(b') Being a middle executive type isn't easy.

We have no way to account for queclaratives, in our framework, since we presently have no idea what intrinsic condition on assertions could be said to be questioned with sentences like (a) and (b). The wh-question type is especially problematic for us, since it is difficult to relate to the questioning of whether an intrinsic condition holds or not. (The same goes for Sadock's (1970) whimperatives which are wh-questions, such as "What do you have to drink?" as a request for a drink.) However we expect that further research will show some relationship between queclaratives and indirect illocutionary acts in our sense.

Sadock's examples are given in (3.49).

(3.49) a. Won't you give me a drink?

b. Do you have anything to drink?

c. May I have a drink?

d. Would you give me a drink?

These examples and the other (yes-no question) examples given by Sadock are examples of what we have been calling indirect commands and requests performed by questioning whether an intrinsic condition holds (although we have not postulated the intrinsic conditions necessary to account for all of them).

Sadock gives three tests for what he calls true imperatives and one test for what he calls true questions and shows that whimperatives pass the former tests and fail the latter. The three tests for true imperatives are: 1) please may follow true imperatives, 2) the indefinite vocative someone may follow true imperatives, 3) true imperatives, but not true questions, may be conjoined with true imperatives. The test for true questions is that they may be preceded by tell me. In our terms, the please test is a test for illocutionary requests, the someone test is a test for commands and requests with unspecified addressee, the conjunction test is explained by noticing that utterances performing two different types of IMPERing cannot be conjoined, and finally, the tell me test is a test for requests for information, i.e., informational questions.[11]

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[11]There is another test mentioned in Sadock (1970, from Jerry Morgan and Georgia Green, personal communication), for distinguishing between formal imperatives and whimperatives, which is that formal imperatives (as well as other types of utterances) may be followed by the 'tag' I tell you, while whimperatives may not. Apparently this tag has a more superficial environment which allows its appearance than the tests just mentioned, since it seems to appear with superficial assertions and imperatives and not with superficial questions and exclamations, no matter what illocutionary force is involved. Thus we have:

(a) John is a doctor, I tell you. (assertion)
(b) You may leave, I tell you. (granting permission)
(c) I want to know what time it is, I tell you. (question)
(d) I can help you with the dishes, I tell you. (offer)
(e) You will take out the garbage, I tell you. (command)
(f) I want you to help me with the dishes, I tell you. (request)

These all seem to be cases of repetition of an illocutionary act but the form of the tag is a mystery.

On the basis of the tests given and some other considerations, Sadock opts for representing whimperatives semantically as a conjunction of an imperative and an interrogative hypersentence, i.e., as a conjunction of a sentence of imperative illocutionary force with a sentence which has the illocutionary force of an informational question. The two conjoined sentences are said to be partially identical. This solution is more or less ad hoc and does not provide an account of which questions can convey requests and commands and which can't.

In our framework, on the other hand, whimperatives (like other indirect illocutionary acts) are represented at the remote structure level as explicit commands or requests, possibly by the use of the appropriate higher performative predicate. These representations are then mapped onto structures which have a performative predicate associated with either assertion or questioning. The mappings which can take place are based only on felicity conditions on commands or requests and thus explain how at some later (but relatively early) stage in their derivation commands and requests become questions. By this account, all tests for distinguishing between whimperatives

and true questions must be tests involving relatively deep semantic facts, and, as we have seen, this appears to be the case.

In fact, we hypothesize that the mapping of illocutionary acts onto illocutionary assertions and questions takes place in the derivation before any syntactic transformations apply, i.e., that assertions and questions used to perform indirect illocutionary acts are syntactically indistinguishable from literal assertions and questions (taking cooccurrence restrictions to be semantic).[12]

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[12]This hypothesis seems to be borne out by such facts as that both (a) and (b) may be indirect assertions of (c), thus showing that negative hopping must apply after the mapping of the structure underlying (c) onto the structure underlying (a).

(a) I believe John isn't insane.
(b) I don't believe John is insane.
(c) John isn't insane.

(The felicity condition justifying this mapping is given below). However, Sadock (personal communication) has shown that a queclarative such as (d) can either be understood as either the assertion of (3) or the assertion of (f).

(d) Does Nixon believe that Rusk knows the meaning of chutzpah?
(e) Nixon does not believe that Rusk knows the meaning of chutzpah.
(f) Nixon believes that Rusk does not know the meaning of chutzpah.

If queclaratives are to be handled in our framework, we are forced by this fact either to claim that the mapping in this case occurs after negative hopping, or to claim that the mapping involved maps two different structures onto the structure of (d), thus duplicating the work of negative hopping in the mapping. Both alternatives are unattractive. A third alternative would be to say that queclaratives are not illocutionary questions and thus fall outside our framework. The choice between these alternatives must await further research.

Another instructive comparison is between Gordon and Lakoff's

(1971) mechanism for relating questions and assertions to the indirect illocutionary acts performed by them and our own mechanism, the mapping indicated above. Gordon and Lakoff's mechanism is a transderivational constraint (see (Lakoff, 1970a) for a discussion of this notion). This works as follows: given derivations D^a and D^b as in (3.50), where S is a surface structure and L is remote structure, there will be cases where L^a conversationally entails L^b, which is to be understood as a transderivational relationship between D^a and D^b.

(3.50) D^a: S^a, ..., L^a

D^b: S^b, ..., L^b

The transderivational relationship of conversational implication is always to be explained on the basis of a sincerity condition on L^b, L^a being the literal illocutionary act and L^b being the illocutionary act conveyed. The transderivational rule relating L^a and L^b is to be understood as an interpretive rule operating on remote structures.

In our framework, there would be only one derivation involved, that given in (3.51) (using the notation given above).

(3.51) D^a: S^a, ..., L^a, L^b

There would be a generative rule mapping L^b onto L^a, where L^b is the indirect illocutionary act and L^b the literal illocutionary act which conveys it. Thus the difference between Gordon and Lakoff's approach and the one adopted here is essentially between the use of an interpretive rule or a generative rule to account for the indirect illocutionary act conveyed by a question or assertion. There seem to be no conclusive arguments for favoring one of the approaches over the

other. However, there are two considerations which seem to tip the scales towards the approach adopted here. First, in Gordon and Lakoff's framework, every intrinsic condition involved in a trans-derivational rule must be turned backwards to yield that rule, while the mappings posited here correspond directly to the intrinsic conditions involved. This is more than a mere notational difference since several different illocutionary acts can have essentially the same intrinsic condition on them, thus forcing Gordon and Lakoff to have several transderivational rules all with the same left-hand side but each with a different right-hand side.

Second, if our hypothesis about the mapping occurring before all syntactic rules is correct, there is no case in which the derivation of L^b, the indirect act, is relevant to the derivation of L^a, the literal act. Only the remote structure, i.e., the semantics of L^b, is relevant. This means that the use of a transderivational rule to account for the facts would be much too powerful a move.

We conclude this chapter by pointing out that, while many intrinsic conditions which heretofore have been considered conditions on particular illocutionary acts can be more profitably viewed as general intrinsic conditions on all illocutionary acts, there are intrinsic conditions which must be viewed as particular to specific illocutionary acts. Two are given in (3.52).

(3.52) a. SAY (S,H,P) → KNOW (S,BELIEVE (S,P))

b. IMPERE (S,H,SAY (H,S,P) → BELIEVE (S,KNOW (H,P))

(3.52a) is the condition that a speaker who performs the act of asserting P must know that he believes P. This is a condition on

sincere assertions only. Searle (1969, p. 66) would have this condition be simply that the asserter believes what he is asserting, but if this were the case, we would not be able to explain the indirect assertion conveyed by (3.53a) and (3.53b) and the impossibility of (3.53c) being an indirect assertion.

(3.53) a. I believe that John left.

b. John left, I believe.

c. Do(n't) I believe that John left?

In all our previous examples it was the content of the speaker's belief that was asserted or questioned to perform an indirect illocutionary act, not that he believed it. Thus the examples in (3.54) do not seem to constitute indirect requests, offers, or questions, but only indirect assertions of believe's complement.

(3.54) a. I believe you can help me.

b. I believe I can help you.

c. I believe you can tell me what time it is.

Further, it would seem impossible to believe a proposition without knowing that one believed it, or vice versa, if "knowing" is used in its ordinary sense.[13] The analysis of the intrinsic

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[13]For some philosophers, "I know that p" primarily means "p, and no amount of further information would have made any difference to my saying so." Among these philosophers is Hintikka (1962), who shows convincingly that if one is using "know" in this sense, one can indeed believe p without "knowing" that one believes p.

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condition in (3.52a) is thus in some sense equivalent to Searle's

analysis, and at the same time allows us to explain by our account the form of (3.53a) and the impossibility of indirectly asserting with (3.53c), the latter following from the fact that the intrinsic condition is not a matter of belief only.

The condition in (3.52b) says that a performer of the act of questioning his addressee must believe that his addressee knows the answer to the question. This intrinsic condition accounts for the use of (3.55a) and (3.55b) as indirect questions about who John is with.

(3.55) a. Do you know who John is with?

b. Don't you know who John is with?

c. You know who John is with.

The fact that (3.55c) cannot be so employed would seem to indicate that (3.52b) is a condition which holds only when the speaker is being deferential to the addressee, and thus that it <u>is</u> possible to ask an addressee for information one knows he doesn't have, if one is not being deferential to him. This seems to be correct.

This chapter has only scratched the surface of the topic of indirect illocutionary acts; it needs to be gone into much deeper. We have at least shown one way in which intrinsic felicity conditions are important to any consideration of the syntax of illocutionary acts.

CHAPTER IV

QUALIFICATION OF ILLOCUTIONARY ACTS

Besides their significance for the performance of indirect illocutionary acts, intrinsic conditions are also syntactically relevant in that certain of them may be used to qualify illocutionary acts. The sort of process we are going to consider is illustrated in (4.1).

(4.1) a. You'll never be a politician, if you don't mind my saying so. (assertion)

b. If I can ask, what do you mean by that? (question)

c. You're a wonderful cook, Martha, if I haven't already told you so. (assertion)

d. I'll help you with the dishes, if it's alright with you. (offer)

e. Perhaps I've already asked you to, but could you take out the garbage? (request)

The *if* clauses in (4.1a) - (4.1d) differ from the *if* clauses of conditional sentences in several ways. First of all, there is no causal connection between the proposition in the *if* clause and the proposition of the main clause as there is between the antecedent and consequent of the normal conditional sentence. Thus while (4.2a) and (4.2c) are acceptable, (4.2b) and (4.2d) are not:

(4.2) a. If John comes, Mary will leave because of his coming.

b. *If I can say something, that's a stupid idea because of my being able to say something.

c. If John were dead, how would Mary feel because he was?

d. *If I could ask, when are you leaving because I can?

Second, while the normal conditional expresses a contingent proposition, there is nothing contingent about (4.1a) - (4.1d). that is, the truth of the illocutionary force of the main clause in these sentences is not contingent on the truth of the <u>if</u> clause.

Third, the <u>if</u> clause of normal conditionals may occur in a variety of tenses and moods, while qualifying <u>if</u> clauses can only be present indicative or subjunctive, or in the case of sentences like (4.1c), only in the past indicative. This is illustrated in (4.3).

(4.3) a. If I had studied, I would have passed.

b. If I were to study, I would pass.

c. If I study, I (will) pass.

d. If I studied, I passed.

e. If I were to have been able to say so, John would have been a doctor.

f. If I were to be able to say so, John would be a doctor.

g. If I could say so, John would be a doctor.

h. If I can say so, John is a doctor.

i. If I was able to say so, John was a doctor.

j. If I could say so, John is a doctor.

(4.3a) - (4.3d) illustrate the pattern for normal conditionals. Of the sentences (4.3e) - (4.3j), (4.3e) and (4.3i) cannot be construed

as assertions of the noncontingent truth of the consequent qualified by the antecedent, (4.3j) cannot be construed as a true conditional, and (4.3f) - (4.3h) are ambiguous between a reading with causal connection and one without. In the last case, (4.3f) and (4.3g) must be read with heavy stress on would to count as noncontingent assertions that John is a doctor. Note that in normal conditionals, if the antecedent is subjunctive, the consequent must also be. This is not, however, the case with qualifying clauses and the associated main clauses. This is the reason why (4.3j) cannot be interpreted as a normal conditional, but only as an assertion that John is a doctor.

A fourth difference is found by comparing sentences like (4.4a) and (4.4b) with sentences like (4.4c) and (4.4d).

(4.4) a. If you don't mind my saying so, whales are mammals.

b. Perhaps you will mind my saying so, but whales are mammals.

c. If whales are viviparous, whales are mammals.

d. Perhaps whales are not viviparous, but whales are mammals.

While the former bear a paraphrase relationship to each other, the latter do not. All qualifying clauses have such paraphrases. Another type of paraphrase not shared with conditional if clauses is exemplified in (4.5).

(4.5) a. How's your wife, if I haven't already asked.

b. How's your wife, or have I already asked that?

c. Your house is a mess, if you don't mind my saying so.

d. Your house is a mess, or do you mind my saying so?

e. Take out the garbage, if I may ask you to.

f. Take out the garbage, or may I ask you to?

g. You may go, if you really want to.

h. You may go, or do you really want to?

To summarize, qualifying <u>if</u> clauses are <u>if</u> clauses which have the following properties: a) they do not bear a causal relation to their main clauses; b) they do not make the utterance hypothetical or contingent; c) they occur only in the present indicative or subjunctive, or in one case, the past indicative; d) they may occur with indicative main clauses when they themselves are subjnnctive; e) they are paraphrasable by <u>perhaps not x but y</u> or <u>y, or x</u>?.

The reason that qualifying phrases are of interest to us is that, like indirect illocutionary acts, they appear to be based on intrinsic conditions, in fact, on a semantically natural subclass of intrinsic conditions. For example, all of the following <u>if</u> clauses are based on the intrinsic conditions on ability and permission discussed in the last chapter, and they may all qualify just those illocutionary acts one would expect them to qualify, given the precondition that the qualifying <u>if</u> clause must be an expression of an intrinsic condition on the <u>illocutionary act it is qualifying</u>:

(4.6) <u>Assertions</u>

a. Fred loves Jello, if I can say so.

b. Fred loves Jello, if you can believe it.

c. Fred loves Jello, if I can get you to believe it.

Questions

d. Where were you last night, if I can ask (you something)?

e. Where were you last night, if you can tell me?

f. Where were you last night, if you can let me know?

g. Where were you last night, if I can know?

Promises, Offers

h. I'll give you a lift, if I can offer to.

i. I'll give you a lift, if I can.

Commands, Requests, Asking Permission

j. Would you walk the dog, if I can ask you to?

k. Would you walk the dog, if you can?

l. I want to leave, if I can ask you to allow me.

m. I want to leave, if you can allow me to.

n. I want to leave, if I can.

Just as with indirect illocutionary acts, possible ambiguities arise. Thus, the if clauses of (4.6i) and (4.6n) are identical, and (4.7) is ambiguous.

(4.7) I'll help you, if I can.

It may be used either to offer help or to request permission to help, which one determined by whether the hearer obviously wants the help or not. Of course, (4.7) may also be used as a straight conditional sentence, a contingent assertion of intention to help. Notice that this last possibility is not open in (4.8), while the first two possibilities still are.

(4.8) I'll help you, if I could.

The conditional reading is disallowed because of the fact noted before, that if the antecedent of a conditional is subjunctive, the consequent must also be.

It was said before that not all intrinsic conditions may be used to qualify illocutionary acts. Of the intrinsic conditions we have examined, the ones on intention, e.g. that the speaker intends to get the addressee to do what he orders or requests him to do, the one on desire, that the speaker wants what he intends, and the ones involving speaker knowledge cannot be used to qualify indirect illocutionary acts. All of the others can, as shown in (4.6) and below.

(4.9) Assertions, Granting Permission

a. John is here, if you didn't already know it.

b. John is here, if you don't mind knowing what I think.

c. *John is here, if I intend to tell you.

d. *John is here, if I want to tell you.

e. John is here, if you want to know.

f. *John is here, if I believe he is.

g. You may eat some cake, if you haven't already.

h. You may rescue the maiden, if you wouldn't mind.

i. *You may leave, if I want to let you.

j. You may leave, if you want to.

k. *You may leave, if I intend to let you.

Questions

l. When is the party, if you haven't already told me {?.}

m. When is the party, if you don't mind me knowing {?.}

n. *When is the party, if I intend to know {?.}

o. *When is the party, if I want to know {?.}

p. When is the party, if you want to tell me {?.}

q. When is the party, if you know {?.}

Promises, Offers

r. I promise to do it, if I haven't already done so.

s. I'll take care of the baby, if you wouldn't mind.

t. *I'll take care of the baby, if I intend to.

u. *I'll take care of the baby, if I want to.

v. I'll take care of the baby, if you want me to.

Commands, Requests, Asking Permission

w. Make your bed, if you haven't already.

x. Take out the trash, if you wouldn't mind.

y. *Take out the trash, if I intend for you to.

z. *Take out the trash, if I want you to.

aa. Take out the trash, if you want to.

bb. Can I go, if you haven't already said I could?

cc. Can I go, if you don't mind?

dd. *Can I go, if I intend to?

ee. *Can I go, if I want to?

ff. Can I go, if you want to let me?

It must be understood that some of the starred sentences are acceptable on some readings; however, they cannot be uttered with the illocutionary force indicated.

What the intrinsic conditions which can be the basis for qualification have in common is that they are all conditions on the

beliefs of the speaker performing the illocutionary act. The condition on speaker intention, that he intends for example to do what he promises to do, the condition on speaker desire, that he wants to happen what he intends to happen, and conditions involving knowledge on the part of the speaker cannot be matters of mere belief for the speaker. In general, it appears that qualifying _if_ clauses qualify those aspects of illocutionary acts which the speaker might reasonably have doubt about, namely the felicity conditions involving his own beliefs. It is the _content_ of the belief which the speaker has doubt about which appears in the _if_ clause. Thus, the following are unacceptable because of the otiose _I believe_:

(4.10) a. *I like rhubarb, if I believe I can say so.

b. *Open the door, if I believe you want to.

c. *Where's Melvin, if I believe you know.

In passing, we note that there is further support here for the formulation given in (3.52a) of the sincerity condition on assertions, repeated below:

(3.52) a. SAY (S,H,P) → KNOW (S,BELIEVE (S,P))

If this condition were merely that one believes what one asserts, we would expect to be able to base a qualifying _if_ clause on this belief. This is impossible, however, as shown by an examination of (4.11).

(4.11) a. Frank did the easy problems, if (he did) them.

b. Did Frank do the easy problems, if (he did) them?

While (4.11a) is acceptable with heavy stress on _easy_ and _them_, it is not a simple case of the qualification of the speaker's belief

in the proposition he is asserting. For one thing, there is involved in (4.11a) (and (4.11b)) the question of which problems Frank was most likely to do, since (4.12) is only acceptable if Frank is wont to do difficult problems in preference to easy ones.

(4.12) Frank did the difficult problems, if them.

Also, there is a parallelism between (4.11a) and (4.11b) which we do not find with the qualifying *if* clauses we have been discussing, for example:

(4.13) a. John is here, if you will believe it.

b. *Is John here, if you will believe it?

This is the case because the application of intrinsic conditions to assertions and questions yields different results. If (4.11) were examples of qualifying *if* clauses based on an intrinsic condition, it would have to be an intrinsic condition on both assertions and questions and further, one which yielded the same result when applied to questions as when applied to assertions. The intrinsic condition in (3.52a), however, is specific to assertions and has no application to questions. We will discuss sentences like (4.11) further in the next chapter, where we find that they are examples of qualification of a presupposition rather than of an intrinsic condition.

So far, we have discovered one necessary condition on intrinsic conditions which are the basis for qualification of illocutionary acts: they must be conditions on the beliefs of the speaker. We have argued that this is a natural restriction, assuming that the qualification we are discussing is a calling into question of something. There is another condition which is equally natural given

this assumption. It is that the intrinsic condition involved must be a non-essential condition. The only essential intrinsic condition we have discussed so far was the one on threats, that the speaker believe that the hearer does not want the speaker to do what the speaker is proposing to do. If this condition does not hold, the speaker cannot be said to be threatening; he is either promising or offering.

Notice that the essentiality of this condition does not prevent its being used in performing an indirect illocutionary act. (4.14) can convey a threat or an offer, depending on the circumstances.

(4.14) Do you want me to hit you?

The fact that the negative force of the condition does not show up in the indirect act is paralleled by what happens to the negative of the intrinsic condition that part of the act already has been performed. In fact as (4.15) shows, unlike other indirect illocutionary acts, these perhaps cannot be conveyed by negative questions.

(4.15) a. Don't you want me to hit you?

b. Haven't I already asked you to help me?

It is difficult to construe (4.15a) as a threat and slightly difficult to construe (4.15b) as a request. This is perhaps an accidental gap in English usage of intrinsic conditions to perform indirect illocutionary acts.

Now consider (4.16):

(4.16) a. I'll hit you, if you want me to.

b. I'll hit you, if you don't want me to.

(4.16a) can only be a promise or offer and can't be a threat. (4.16b)

cannot be any of these. It is instead a plain conditional assertion, with causal connection between antecedent and consequent. We would expect (4.16b) to be the correct expression of the qualified threat, since negatives in intrinsic conditions do show up in qualifying if clauses, unlike the case with indirect assertions. Thus:

(4.17) a. John is here, if I haven't already told you.

b. Why purple, if you don't mind me asking?

Another case of an essential intrinsic condition, which is particular to the act of warning the addressee that X (as opposed to warning the addressee to X), where X is some event, is that the speaker must believe that the occurrence of X is not in the addressee's best interest (Searle, 1969, p. 67). If the speaker believes to the contrary or has no opinion on the matter, he is not warning; he is simply asserting X to the addressee. As expected, one can perform an indirect illocutionary act using this condition; e.g., (4.18), when not an informational question, constitutes a warning.

(4.18) Is it to your best interest that your car has no brakes?

And, bearing out our hypothesis, (4.19), if acceptable at all, is not illocutionarily a warning.

(4.19) I warn you that your car has no brakes, if it isn't in your best interest.

To summarize, we have determined that qualifying if clauses are based on a natural subclass of intrinsic felicity conditions, non-essential intrinsic conditions on the speaker's beliefs.

We next consider what happens when qualifying if clauses are

used with utterances which are expressions of indirect illocutionary acts. When we begin examining such cases, we notice first of all that the same intrinsic conditions cannot be both the basis for an indirect illocutionary act and qualified by an *if* clause. Thus the utterances in (4.20) and others like them are unacceptable except, perhaps, as conditional questions.

(4.20) a. *If I may say something, may I say that it has been wonderful?

b. *Did I ask you how you've been, if I haven't already asked you?

c. *Do you want me to help you, if you want me to help you?

d. *Do you mind taking out the garbage, if you don't mind?

e. *Do you know what time it is, if you know?

f. *If you may tell me, you may tell me what you're doing.

g. *If you will, you will not speak.

This restriction on qualification of indirect illocutionary acts is given in (4.21).

(4.21) One cannot perform an indirect illocutionary act by asserting that or questioning whether an intrinsic condition on K holds and at the same time call that same intrinsic condition into question by qualifying it.

However, we must be careful to be exact about what we mean by "same int. nsic condition." Actually it appears that problems don't arise if the indirect act and the qualification derive from *different applications* of the same intrinsic conditions, as the examples in (4.22) show.

(4.22) a. Can I say that it has been wonderful, if you can believe it?

b. Do you want me to let you leave, if you want to leave?

c. Do you mind taking out the garbage, if you don't mind my asking you to?

d. Do you know where my wife is, if I can know?

e. *Did you tell me where you're going, if I haven't already asked?

The only exception is (4.22e), and, as it turns out, this is explainable by the fact that indirect illocutionary acts based on the intrinsic condition that the speaker believes that no part of the act has already been performed cannot be qualified at all, as illustrated by the examples in (4.23).

(4.23) a. *Did you walk the dog, if you can?

b. *Did I ask you how you like my hair, if you know?

c. *Did I tell you that I'm pregnant, if you can believe it?

d. *Did I offer to help you with the dishes, if you want me to?

e. *Did you take out the garbage, if you don't mind?

f. *You haven't told me yet where you are, if you want to.

g. *You haven't yet closed the door, if you don't mind.

It would appear that qualifying an illocutionary act by calling any felicity condition on that act into question makes it impossible to convey that act by asserting that or questioning whether some part of that act has already been performed.

Other intrinsic conditions which act the same way are ones based on the intentional condition on assertions, that the speaker intends to cause the addressee to believe what he is asserting. Two such derived conditions are that the speaker believes that the addressee is able to believe what he is asserting and that the addressee will believe in the future what he is asserting. The impossibility of qualifying indirect illocutionary acts based on these conditions is shown in (4.24).

(4.24) a. *If I can tell you something, can (will) you believe that John has passed his exams?

b. *Can (will) you believe that my wife is pregnant, if you didn't already know?

c. *Can (will) you believe that George left, if I haven't already told you?

d. *Can (will) you believe that my son is a drop-out, if you want to know what I think?

e. *Can (will) you believe that I saw Jesus last night, if you don't mind my saying so?

The unacceptability of the utterances in (4.24) is not to be explained by reference to the behavior of the ability and futurity intrinsic conditions, for, in general, indirect illocutionary acts based on them can be qualified. (4.25) gives some examples.

(4.25) a. Can I say, if I haven't told you already, that I'm sorry?

b. Can I tell you something? If you don't already know it, your hair's on fire.

c. If I haven't already asked, can you tell me when you're leaving?

d. Can I say that your husband is the world's best cook, if you can believe it?

e. You can go in now, if you want to.

f. Can you clean the cat-box, if you don't mind?

g. I will allow you to close the door, if I haven't already told you so.

h. You will tell me how you knew that, if you don't mind my asking.

i. I will be a faithful husband, if I can.

j. Will you allow me to see her, if you can?

Nor can the unacceptability of sentences like those in (4.24) be explained by the fact that there is a mediating intentional condition involved, since intrinsic conditions based on a similar intentional condition on questions, that the speaker intends to cause the addressee to cause him to know what he is asking,can be used to perform indirect illocutionary acts which can be qualified, as in (4.26).

(4.26) a. If I can ask you something, do you (will you let me) know where the nearest telephone is?

b. If I haven't already asked, do you (will you let me) know why they put you in jail?

c. If you want to tell me, do you (will you let me) know what she ate for lunch?

d. If you don't mind me asking, do you (will you let me) know what has four wheels and flies?

Apparently, the inability to be qualified shown by assertions based on the intentional condition that the speaker intends the addressee to believe what he is asserting can only be explained as some idiosyncrasy in the behavior of this particular intrinsic condition. Perhaps further research will yield a more satisfactory explanation for the facts in (4.24).

With respect to qualifiability of indirect illocutionary acts based on them, the other intrinsic conditions we have discussed all act like the ability condition with two restrictions, the one given in (4.21) concerning not qualifying an indirect illocutionary act with the same application of the intrinsic condition which it is based on, and a second one, that the intrinsic condition that the speaker believes that the addressee wants what the speaker intends cannot be qualified in an indirect illocutionary act based on the intrinsic condition that the speaker believes that the addressee doesn't object to any part of the illocutionary act in question. The reverse is also true. This is shown in (4.27).

(4.27) a. *Do you want to take out the garbage, if you don't mind (taking it out)?

b. *Do you mind my asking where your bathroom is, if you want to tell me?

c. Do you want to open the window, if you don't mind my asking?

This seems to provide further evidence that these two intrinsic conditions may actually be one (cf. the discussion of (3.31) - (3.35)), because if they were one, we could then account for the unacceptability of (4.27a) and (4.27b) as resulting from a violation of the restriction given in (4.21). This suggests itself strongly, since (4.27c) <u>is</u> acceptable, as would be expected if two different applications of the same intrinsic condition were involved.

If we attempt to use this type of argument to demonstrate that (3.31) is the same condition as (3.30), i.e., that the condition that the speaker believes that no parts of the illocutionary act have already occurred is the same condition as the one that the speaker

believes that all parts of the illocutionary act (save the act itself) will occur in the future, we find that the argument will not work. This is because sentences like (4.28a) are acceptable as requests and the unacceptability of sentences like (4.28b) as requests is explained by the unqualifiability of any indirect illocutionary acts based on the non-prior-performance intrinsic condition (cf. the discussion of (4.23)).

(4.28) a. Will you see what's wrong with Jane, if you haven't already?

b. *Have you already seen what's wrong with Jane, if you will?

This seems to be negative evidence that the conditions in (3.31) and (3.32) are in fact different intrinsic conditions.

CHAPTER V

PRESUPPOSITIONS

In the last chapter, we discussed the phenomenon of illocutionary act qualification and showed how it could be explicated by reference to intrinsic felicity conditions. In this chapter, we will show that there is a considerable parallelism between presuppositions and intrinsic felicity conditions, in that there is a process of qualification of utterances having presuppositions, or in other terms, a process of qualification of the presuppositions of utterances which seems to be a process quite similar to illocutionary act qualification.

Before we can demonstrate this parallelism, however, we must be clear on what we mean by the term 'presupposition' and more precisely, who or what presupposes and what happens when the presupposition is violated. Garner (1971), in a comprehensive review of the notion of presupposition, points out that while most philosophers writing on presuppositions assume either that illocutionary acts presuppose or that the (abstract) speaker of an utterance presupposes, and presupposition failure leads to the nonperformance of the illocutionary act involved, many linguists speak of the presuppositions of sentences and say that presupposition failure causes the statement made by the sentence to lack truth or

to be meaningless. Garner gives reasons why the linguists' view leads to difficulties. One is as follows: suppose one claims sentences of the type "A knows that P" presuppose the factuality of P. Then "it would seem that we would have to say that unless P were the case, nobody could either assert or deny (successfully) that P was known by anyone. This is, at the very least, highly problematic" (Garner, 1971, fn. 23). On the other hand, if we speak of the speaker of an illocutionary act presupposing P, we may restrict our attention to whether the speaker believes P to be true or not, and not get involved in the question of whether or not P is actually true.

Let us tentatively adopt the view that speakers performing illocutionary acts presuppose things, and further, that for a speaker to presuppose a proposition is for him to believe that the proposition is true. If it is in fact false that the speaker believes the presupposition to be true, then the illocutionary act is void or at least infelicitous.

The question then arises as to what the difference is between presuppositions and the sort of speaker beliefs we are calling intrinsic felicity conditions. An obvious answer is that while intrinsic conditions are either very general conditions on the performance of all illocutionary acts or are less general conditions on specific illocutionary acts (independent of what the form of the utterance is which is used to perform the act), presuppositions are associated with the use in utterances of specific lexical items (or specific complexes of semantic primes) and don't seem to vary from

one type of illocutionary act to another. In other words, intrinsic conditions on illocutionary acts in a sense follow by definition from a consideration of the meaning of those acts or what it means in general to perform an illocutionary act, while presuppositions are unrelated to the meaning of illocutionary acts. Thus, given the proposition P, "You point out that Q" (where Q is a proposition), no matter whether you assert P, question P, promise P, or command P, it must always be the case that you believe Q. Further, you can even deny the proposition P or use it as the antecedent of a counterfactual conditional and you would still be committed to the truth of Q.

Actually, matters are not as simple as the preceding account would have it. Not all presuppositions are as invariant as the belief in the complement of point out. Karttunen (1971) has shown that there are some verbs like manage and remember which apparently presuppose[14] the truth of their complements in all assertions, but

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[14]When we speak of a word presupposing, it must be understood only as a convenient locution for the speaker of an utterance containing the given word presupposing.

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presuppose the negative of their complements in denials and in questions conveys the question of their complement. This is exemplified in (5.1).

(5.1) a. John managed to stop eating anchovies. →
John stopped eating anchovies.

b. John didn't manage to stop eating anchovies. →
John didn't stop eating anchovies.

c. Did John manage to stop eating anchovies? →
Did John stop eating anchovies?

The so-called presuppositions in (5.1) look suspiciously like what we have been calling indirect illocutionary acts, since rather than merely being presupposed, they are often conveyed by the utterances they are associated with. Further, manage shows up in utterances we already know to be indirect illocutionary acts, as in (5.2).

(5.2) a. Can you manage to tell my why you're wearing that mask?

b. I can manage to say that we plan no wider war.

c. Can I manage to help you somehow?

d. Could you manage to shave before Mother comes?

e. Did I manage to tell you that Sylvia got married?

f. ?Did you already manage to tell me what her name is?

g. Can you manage to believe that Harry proposed?

However, as (5.3) shows, manage may not be used by itself to convey an indirect illocutionary act.

(5.3) a. *I am managing to say that you're wrong.

b. *Are you managing to tell me what you're doing here?

c. *I manage to say that you're wrong.

d. *Do you manage to tell me what you're doing here?

These facts can be accounted for, if we employ Searle's (1969) distinction between illocutionary acts and propositional acts. Acts of asserting, commanding, questioning, promising, etc., are

illocutionary acts, while acts of referring and predicating are propositional acts. One propositional act can usually be used to perform any of a number of illocutionary acts, but it is impossible to perform a propositional act without at the same time performing an illocutionary act. On the other hand, some illocutionary acts, like utterances of "Huzzah" or "Ouch," do not have prcpositional content, and may thus be performed without performing any propositional act. Propositional acts must be distinguished from utterance acts, i.e., the uttering of words, because the same proposition may be expressed by different paraphrases and different referring expressions.

Now let us mcdify what we said before about what presuppositions are. We shall say that a speaker performing a propositional act presupposes, and further, that for a speaker to presuppose something is for him necessarily to believe that another proposition is true. If there is presupposition failure, the propositional act is invalid, and therefore any illocutionary act performed by performing the propositional act is void.

In this view, presuppositions are nothing more or less than felicity conditions (in fact intrinsic felicity conditions) on propositional acts. As such they may be the basis for indirect prpositional acts, just as felicity conditions on illocutionary acts may be the basis for indirect illocutionary acts. In the case of verbs like manage, succeed (in), get (to), we notice that for the speaker to perform the propositional act of predicating a volitional act V of some agent A, it is necessary for the speaker to

believe that A manages to perform V, that A succeeds in performing V, and that A gets to perform V. These are conditions on the predication of a volitional act. Moreover, these conditions are not only necessary conditions on the predication of a volitional act, but also sufficient conditions for the predication of a volitional act (Karttunen, 1971, p. 350ff). Thus, it makes sense that one can predicate of an agent that he manages to, succeeds in, or gets to perform a volitional act as the performance of an indirect propositional act of predicating that the agent does perform the act. Since the conditions on which the indirect propositional act may be based are both necessary and sufficient conditions on the propositional act involved, the indirect propositional act cannot be avoided. We shall see in the next chapter that there are cases of indirect propositional acts which are not obligatory.

The unacceptability of the utterances in (5.3) shows that the distinction between propositional acts and illocutionary acts is not just philosophical hair-splitting, but has syntactic relevance. The utterances in (5.3) are unacceptable because a felicity condition on propositional acts has been used as the basis for an alternative expression of an explicit performative verb or illocutionary force marker. All we need to say is that explicit performative verbs do not predicate, in the normal sense of the term, when they are used performatively. When a presupposition is used as the basis for an indirect propositional act and applies to a verb which may be either taken as an explicit performative or a simple predicate, the former interpretation is disallowed, and thus

the utterance is disambiguated.

(5.4) a. I request (to have) 50 boxes a day. (ambiguous between performative and aorist interpretations)

b. I manage to request (to have) 50 boxes a day. (unambiguously aorist)

We shall have more to say about indirect propositional acts in the next chapter, when we examine invited inferences. Right now we will examine the qualification of presuppositions, a process parallel to the qualification of felicity conditions on illocutionary acts. (5.5) gives examples of what we are concerned with.

(5.5) a. The stash is in the air vent, if anywhere.

b. Only John has the strength to lift that, if he does.

c. (Only) five people came, if that many.

d. Few blue whales, if any, have survived.

e. John has stopped beating his wife, if he used to beat her.

Lakoff (1970b) has described this sort of thing as a process of presupposition cancelling. (It has also be discussed from an interpretive viewpoint by Wilson (1970)). For example, considering (5.5d) in detail, the proposition "Few blue whales have survived" presupposes the proposition that there exists at least one blue whale which has survived. The latter proposition must be true before the former proposition is meaningful. However, the presupposed proposition need not be true in the case of (5.5d). This is shown by the fact that (5.5d) can have a continuation which denies the presupposition in question, while the same sentence without the <u>if</u> clause cannot have such a continuation, as in (5.6).

(5.6) a. Few blue whales, if any, have survived, but perhaps none have.

b. *Few blue whales have survived, but perhaps none have.

To call this process presupposition cancelling is to suggest that (5.5d) no longer has the presupposition in question. Lakoff himself argues against this, giving evidence that the presupposition is still there, but no longer required to be true. Thus, instead of using the term cancelling, we shall call this process presupposition qualification.

Before continuing the discussion of Lakoff's treatment of presupposition qualification, we shall demonstrate some of the resemblances between the <u>if</u> clauses used for the qualification of presuppositions and those used for the qualification of intrinsic conditions. (5.7) contains the utterances of (5.5) with their <u>if</u> clauses expanded.

(5.7) a. The stash is in the air vent, if it is anywhere (around here).

b. Only John has the strength to lift that, if (even) he has the strength to lift that.

c. (Only) five people came, if (even) that many people came.

d. Few blue whales have survived, if any blue whales have survived.

e. John has stopped beating his wife, if he used to beat her.

The first point of similarity between the <u>if</u> clauses in (5.7) and the qualifying <u>if</u> clauses we have discussed is the lack of causal connection in both of them between the proposition expressed by the

<u>if</u> clause and the proposition expressed by the main clause. Actually, normal conditionals, such as those in (5.8), also seem to lack causal connection at times.

(5.8) a. If the moon has a ring around it, it will rain.

b. The moon's having a ring around it would cause it to rain.

c. If John thinks he can get away with it, he's crazy.

d. John's thinking he can get away with that would cause him to be crazy.

Thus, (5.8b) and (5.8d) are not paraphrases of (5.8a) and (5.8c). However, it can be seen that there is in such conditionals a causal connection between the <u>if</u> clause proposition and the speaker's believing the proposition expressed by the main clause. Thus, (5.9a) and (5.9b) are paraphrases of (5.8a) and (5.8c), respectively.

(5.9) a. The moon's having a ring around it would cause me to think that it's going to rain.

b. John's thinking he can get away with it would cause me to believe he's crazy.

However, as a comparison of (5.10) with (5.7) will show, neither type of causal connection exists with <u>if</u> clauses of the type illustrated in (5.7).

(5.10) a. *The stash's being anywhere around here would cause it to be in the air vent.

a'.*The stash's being anywhere around here would cause me to think it's in the air vent.

b. *(Even) John's having the strength to lift that would cause only John to have the strength to lift that.

b'. *(Even) John's having the strength to lift that would cause me to think that only John has the strength to lift that.

etc.

The two types of *if* clauses are also similar in that they share the same types of paraphrases. Utterances containing either type may be paraphrased with utterances of the form *Y, or X?* or of the form *Y, or perhaps not X*. However, only utterances containing *if* clauses qualifying illocutionary acts may be paraphrased with utterances of the form *Perhaps not X, but Y.*, perhaps because of some difference between the use of *but* as a conjunction of propositions and its use as a conjunction of illocutionary acts. These paraphrases are illustrated in (5.11) for the corresponding sentences of (5.7), the paraphrasability of utterances containing *if* clauses qualifying illocutionary acts already having been discussed in chapter four.

(5.11) a. The stash is in the air vent, or {perhaps it's nowhere around here. / is it anywhere around here?}

b. Only John has the strength to lift that, or {perhaps (even) he doesn't. / does (even) he?}

c. Five people came, or {perhaps not (even) that many. / did (even) that many?}

d. Few blue whales have survived, or {perhaps none. / have any?}

e. John has stopped beating his wife, or {perhaps he never used to. / did he use to?}

The third similarity is that <u>if</u> clauses like those in (5.7) apparently may be indifferently subjunctive or indicative while the main clause remains indicative, although there is dialectal variation concerning this:

(5.12) a. The stash is in the air vent, if it would be anywhere around here.

b. Only John has the strength, if even he would have.

c. ?Five people came, if even that many would have.

d. ?Few blue whales have survived, if any would have.

e. John has stopped beating his wife, if he would use to beat her.

(5.12c) and (5.12d) show that the subjunctive paraphrase must be restricted to the present tense cases, perhaps because of the usual counterfactual presupposition of the past subjunctive.

The fourth similarity is that the propositions expressed by the utterances in (5.7) are not contingent propositions. In fact, the <u>if</u> clause use increases the number of circumstances under which the proposition of the main clause may be true, while in normal conditionals, the proposition of the antecedent limits the circumstances under which the proposition of the consequent may be true.

There is a major dissimilarity between the <u>if</u> clauses qualifying illocutionary acts (intrinsic conditions) and those qualifying propositional acts (presuppositions), and that is that the latter may be <u>past</u> subjunctive or indicative if the main clause is past subjunctive, as in (5.13).

(5.13) a. The stash would have been in the air vent,

if it { had been anywhere. / were to have been anywhere. / was anywhere. }

b. Only John would have had the strength, if

(even) he { had had it. / were to have had it. / had it. }

c. Five people would have come, if (even)

that many { had. / were to have. / did. }

d. Few blue whales would have survived, if

any { had. / were to have. / did. }

e. John would have stopped beating his wife,

if he ever { had beat her. / were to have beat her. / did beat her. }

We see above the same indifferent use of past subjunctive and indicative that we noticed with the present, but this may perhaps be explained in this case by the dying out of the past subjunctive in English. Ths difference we have discovered may be explained by assuming, as Searle (1969) does, that the subjunctive mood is part of an illocutionary force indicator, i.e., that subjunctively asserting and questioning are illocutionary acts. Since the qualification of propositional acts has no connection with illocutionary acts performed by those propositional acts, we would expect to find real subjunctive qualifying <u>if</u> clauses on subjunctive propositional acts, while qualifications of illocutionary acts

could never be subjunctive. In other words, while qualifications of presuppositions are inside the domains of the illocutionary acts in question, qualification of intrinsic conditions on illocutionary acts are outside the domain of these acts.

We have demonstrated enough similarity between the qualifying if clauses on intrinsic conditions of illocutionary acts and those on presuppositions to consider them to be manifestations of the same process, with the differences between them accounted for by the differences that exist between illocutionary and propositional acts. We now turn to a consideration of the fact that not all presuppositions are qualifiable. Lakoff (1970b) claims that not only are some presuppositions inherently not qualifiable, e.g. the factivity of the complements of factive verbs, but also that those presuppositions that are qualifiable may in fact be qualified only if they occupy a certain position in the presuppositional structure of the sentence (in our terms proposition) in question, namely, that they are first order presuppositions.

Lakoff defines the order of presuppositions in terms of the concept "immediately presupposes": "Thus we will say that 'S_1 immediately presupposes S_2 [']' if and only if S_1 presupposes S_2 and there is no S_3 such that S_1 presupposes S_3 and S_3 presupposes S_2" (Lakoff, 1970b). First order presuppositions are those which the propositional act immediately presuppose, second order presuppositions are those which the first order presuppositions immediately presuppose, and so forth.

An example of first and second order presuppositions (from

Lakoff, 1970b) is given in (5.14).

(5.14) a. Few men have stopped beating their wives.

b. (first order presupposition) Some men have stopped beating their wives.

c. (second order presupposition) Some men have beaten their wives.

Lakoff notes that (5.14a) presupposes both (5.14b) and (5.14c),[15] but

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[15]Lakoff claims that the relationship of presupposing is not always transitive. However, all his counterexamples to the transitivity of presupposition either are based on a faulty presuppositional analysis of pretend (Karttunen, 1970a) or the nonfactivity of realize in conditional sentences (Karttunen, 1970b).

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that while the first order presupposition can be qualified, as in (5.15a), the second order presupposition apparently cannot be qualified, as shown by (5.15b).

(5.15) a. Few men have stopped beating their wives, if any have stopped.

b. *Few men have stopped beating their wives, if any have ever beaten them at all.

However, it seems more likely that (5.15b) is unacceptable not because of qualification of a second order presupposition, but because one if clause is being used to qualify two presuppositions at the same time. If we separate the qualification of the presupposition associated with few from the qualification of the presupposition associated with stop, as in (5.16), we find that the 'second order' presupposition associated with the verb stop can in fact be qualified.

(5.16) a. Few men, if any, have stopped beating their wives, if they ever beat them at all.

b. Few men have stopped beating their wives, if they ever beat them at all.

Sentence (5.16b), for example, could be asserted by somebody who is taking a poll to determine, of those men who have beaten their wives, how many have stopped, and who finds that few men have in fact stopped and further that it is questionable that those men should count in the poll, since there is evidence that they lied in response to the initial question, whether they had ever beaten their wives.

It can be further shown that the notion of order of presupposition is somewhat problematic. since in cases like (5.17), there is no way to determine which is the first order presupposition and which is the second, of Pr_a and Pr_b, while admittedly Pr_c seems to be more distantly associated with the proposition expressed be the assertion.

(5.17) John has stopped beating his wife.

Pr_a. Somebody has stopped beating his wife.

Pr_b. John used to beat his wife.

Pr_c. Somebody used to beat his wife.

The difficulty could be solved by calling both Pr_a and Pr_b first order presuppositions and Pr_c a second order presupposition. However, it is not very explanatory to say that (5.18) (as an example of qualification, not as a conditional) is unacceptable because Pr_c is a second order presupposition, when really what is going on is that one cannot qualify two presuppositions at the same time.

(5.18) *John has stopped beating his wife, if anybody used to.

Another condition on qualification of presuppositions is that the qualifying *if* clause must be in the same clause as the word connected with the presupposition being qualified, thus, in (5.19), the NP being qualified can only be the one immediately following the qualifying phrase.

(5.19) a. If anybody, Harry was sick.

b. If anybody, John said that Harry was sick.

c. If anybody, Milt regretted that John said that Harry was sick.

Putting heavy stress on *Harry* in (5.19b) or (5.19c) or *Milt* in (5.19c), thus marking them as the referring expression which has its presupposition qualified, causes these sentences to be unacceptable.

Returning to the subject of qualifiable versus nonqualifiable presuppositions, we recall that there were two possible reasons why a given intrinsic condition could not be qualified: 1) it is a condition on the speaker's intentions, desires, or knowledge rather than on the speaker's beliefs, or 2) it is an essential condition which must be fulfilled for the illocutionary act to take place. Since all presuppositions seem to be conditions on the speaker's beliefs rather than on his knowledge, intentions, or desires, it appears that an explanation of why some presuppositions are not qualifiable similar to that given in 1) is not open to us. Nor can we expect to find an explanation similar to that given in 2), since by definition the presuppositions associated with a propositional act are necessarily believed to be true if the propositional

act is to have a truth value or be meaningful. There are no cases of propositional acts which have a truth value but which are odd or misleading because of a presupposition failure, parallel to the cases of illocutionary acts which are infelicitous because of the falsity of an intrinsic condition but which still constitute illocutionary acts. In fact we have no explanation for why some presuppositions are not qualifiable.

Continuing this discussion, we give some examples of qualifiable and non-qualifiable presuppositions. Corresponding to the examples of qualifying <u>if</u> clauses given in (5.7), we have the following qualifiable presuppositions:

(5.20) a.	if anything if anybody if anywhere etc.	If the speaker predicates f of a referring expression r, he presupposes that there exists in the <u>domain of discourse</u> some object that f is true of..
b.	if he does if that	To say ONLY (a,f(a)) presupposes f(a).[16]
b'.	if that many	To say there exists only some number of x such that f(x) presupposes f(x) for that number of x.
c.	if any	To say FEW (a,f(a)) presupposes there exists an x such that f(x) is true.
d.	if S used to	To say of an argument that it stops at time t presupposes that there exists a time t_1 before t such that the argument occurs at t_1.

[16] We follow here Horn's (1969) presuppositional analysis of <u>only</u> and his representation of <u>only</u> as a two place predicate taking as first argument its scope and as second argument a predication about its scope.

All of the presuppositions given in (5.20) are invariant under assertion, questioning, and subjunctive assertion. The first one however does not count as a presupposition under denial (the others do). This need not concern us much, since invariance under assertion, questioning, subjunctive assertion, and denial is not for us a defining characteristic of presuppositions.[17] Presuppositions

[17] That invariance under questioning and under subjunctive assertion does not hold even for the presupposition that the complement of factive verbs is true is shown by Karttunen (1970b).

are those propositions which the speaker must believe to be true to bring off a propositional act. We argued before that propositional acts are embedded in illocutionary acts at least for the purposes of presupposition qualification, so it is not surprising to find some interaction between the illocutionary act and its associated propositional act. In fact, we can hypothesize that the interaction is all one-way, that is, we would be surprised to find that a felicity condition on an illocutionary act need not hold if the illocutionary act's associated propositional act was of a certain form.

One of the claims implicit in (5.20b) and (5.20b') is that whenever we find an utterance with a qualifying if clause of the form if that or if him or if and a clause with a stressed definite noun phrase, the noun phrase in the main clause which gave rise to the presupposition being cancelled must be an argument of the predicate only. There are obviously superficial counterexamples to this, e.g. those in (5.21).

(5.21) a. The fire is smoldering, if that.

b. Five people came, if that.

c. He likes her, if that.

(5.22) a. The fire is only smoldering, if it is doing that.

b. Only five people came, if that many people came.

c. He only likes her, if he feels that strongly about her.

However, not only are the sentences in (5.21) paraphrasable by the sentences in (5.22), but the same contrastive stress shows up on the noun phrases (perhaps underlying) in the examples of (5.21) that shows up on the noun phrases quantified by only in the corresponding examples of (5.22). As Wilson (1970) points out, it is difficult to begin discourses with sentences like those in (5.21). In fact, there are some like (5.23) which only seem possible in response to something like (5.24).

(5.23) George came, if he did.

(5.24) George, Harry, and Mike came.

In other words, sentences like those in (5.21) serve only to contradict either what someone else has just said or to contradict a shared assumption. This is a feature which utterances containing only have, since, following Horn (1969), the assertion of an utterance containing only amounts to the assertion that no argument in the domain of discourse other than the argument that is in the scope of only is characterizable by the predication of the assertion. That is:

(5.25) SAY (ONLY (x=a, f(x))) → SAY ($\neg\exists y(y\neq a \ \&f(y))$)

Another reason for assuming that there is an underlying only in sentences like (5.21) is that the noun phrases in question show the same scale of strength behavior that Horn (1969) showed existed for the argument of only. Thus, just as (5.26a) is unacceptable, so is (5.26b).

(5.26) a. *He only loves her, he doesn't like her.

b. *He loves her, if that.

For these reasons, we can assume that utterances which have following if that clauses have at least an underlying only taking the qualified expression as its first argument and that this only is optionally deletable.

Examples of non-qualifiable presuppositions are actually quite difficult to come by. We have been able to find only two (although there may well be others): 1) that the speaker believes that what he is predicating a factive predicate of is true, and 2) that when the speaker predicates even (x=a, f(x)), he believes that $\exists y(y \neq a, f(y))$ (using Horn's (1969) analysis).[18]

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[18] In a future work it will be shown that the presupposition of even given here is more accurately that f is also true of more likely arguments in the domain of discourse for it to be true of than a, rather than simply that there exists another instantiation of x such that f(x) is true. This difference in analysis is not crucial to the discussion here.

It might at first glance appear that these presuppositions are actually qualifiable because of the existence of sentences like those in (5.27).

(5.27) a. If John is upstairs, Harry realizes that he is.

b. If somebody else comes, even Irv will come.

However, as shown in (5.28), these sentences are actually normal conditionals with causal connection between antecedent and consequent, and, as (5.29) shows, they do not have the paraphrases we would expect for sentences containing qualifying <u>if</u> clauses.

(5.28) a. John's being upstairs would cause Harry to realize that he is.

b. Somebody else's coming would cause me to believe that even Irv is coming.

(5.29) a. *Harry realizes that John is upstairs, or is he?

b. *Even Irv is coming, or perhaps nobody else is.

It is particularly interesting to examine a class of utterances which have <u>if</u> clauses which are ambiguous between readings where they are antecedents of true conditionals and readings where they qualify a propositional act. An example of such an utterance is given in (5.30).

(5.30) John left last night, if he was able to.

This utterance is ambiguous between the reading given in (5.31a) and the reading given in (5.31b).

(5.31) a. John's having been able to leave last night would cause me to believe that he did leave.

b. John left last night, or was he able to?

To delimit this class of utterances and to account for the (5.31b) reading of (5.30), we must consider in detail Karttunen's (1971) analysis of what he calls <u>implicative verbs</u>. For Karttunen, an implicative verb is one which when used in assertions implies

that its complement is true, as factive verbs do (Kiparsky and Kiparsky, 1970), but which when negated implies that the negative of its complement is true and which in questions amounts to a question about whether its complement is true, unlike factive verbs. An example will clarify this: the assertion of (5.32a) amounts to the assertion of (5.32b), the assertion of (5.32c) amounts to the assertion of (5.32d), and the question (5.32e) amounts to the question (5.32f) (leaving aside cases with contrastive stress on the main verb).

(5.32) a. John happened to see Mary.

b. John saw Mary.

c. John didn't happen to see Mary.

d. John didn't see Mary.

e. Did John happen to see Mary?

f. Did John see Mary?

Similarly, there are, according to Karttunen, negative implicative verbs, which, when used in positive assertions, imply that their complements are false, when used in negative assertions, imply their complements are true, and when used in questions, amount to a question about whether or not their complements are false. An example of a negative implicative verb is fail (to), whose behavior is demonstrated in (5.33).

(5.33) a. Fred failed to button his fly. =

b. Fred didn't button his fly.

c. Fred didn't fail to button his fly. =

d. Fred buttoned his fly.

e. Did Fred fail to button his fly? =

f. Did Fred not button his fly?

Some of the verbs which are implicative are given in (5.34) and some which are negative implicative are given in (5.35)

(5.34) a. manage (to), get (to), succeed (in), happen (to)

b. remember (to), choose (to), be able (to), dare (to), see fit (to)

(5.35) a. fail (to), neglect (to), refrain (from)

b. forget (to), decline (to), refuse (to), be too lazy, stupid, smart, etc., (to)

Karttunen explains the behavior of the above verbs by reference to the fact that utterances containing the verbs in (5.34a) constitute necessary and sufficient conditions for believing that the complements of those verbs in such utterances are true, while utterances containing the verbs in (5.35a) constitute necessary and sufficient conditions for believing that the complements of those verbs are false. Thus, it is impossible under all circumstances for one to happen to do something and not do it or for one not to happen to do something and do it. Similarly, it is impossible to fail to do something and do it or not to fail to do something and not do it. Thus, the propositions expressed with the verbs in (5.34a) and (5.35a) are in some sense equivalent to the propositions which they convey, although there is, to be sure, a meaning difference between the explicit proposition and the conveyed proposition not relevant to the stated equivalence.

In the case of the verbs in (5.34b) and (5.35b),[19] Karttunen

[19]Some of the verbs which Karttunen would have included in the classes exemplified by our (5.34a) and (5.35a) we would reclassify as belonging to the classes exemplified by (5.34a) and (5.34b). Such verbs include remember, dare, forget, and decline. This is necessary because we find these verbs to act like those in (5.34b) and (5.35b) in our dialect. The fact that dialects can differ in such judgments is noted by Karttunen and will be discussed in the next chapter.

points out that they are ambiguously implicative or non-implicative and that strictly speaking utterances containing them constitute only necessary and not sufficient conditions for believing that their complements in such utterances are true in the case of verbs in (5.34b) or false in the case of verbs in (5.35b). Thus a sentence like (5.36a) is ambiguous between a reading where it is about John's ability and a reading where it is used to convey a statement about what John did and is only secondarily about John's ability.

(5.36) a. John was able to complete his collection.

b. John was able to complete his collection, but he didn't because he had lost interest in it.

The sentence (5.36b), however, can only be interpreted as a statement about John's ability because the continuation contradicts the indirect assertion. Comparing (5.36) with (5.37), (and ignoring the readings with heavy stress on able), we find that it is impossible to avoid the indirect reading of (5.37a), where it is a statement about what John didn't do as well as one about his abilities.

(5.37) a. John wasn't able to be present.

b. *John wasn't able to be present, but he was present.

This is explained by the fact that being able to perform a volitional act is a necessary, but not sufficient, condition on the actual performance of that act.[20] However, as Karttunen argues, it is

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[20]It should be noticed that this condition is quite similar to the ability intrinsic condition on illocutionary acts discussed earlier. In fact, it would be better to say that there is one condition on ability which applies to both illocutionary and propositional acts, and that differences between the syntactic reflexes of this condition in the qualification (and indirect performance) of illocutionary acts and those syntactic reflexes in the qualification (and indirect performance) of propositional acts all result from general differences between illocutionary and propositional acts. Thus for example in *if* clauses qualifying illocutionary acts, *be able* and *can* can only have 1st or 2nd person subjects, while in *if* clauses qualifying propositional acts, they can have 3rd person subjects (as we shall see below), obviously a consequence of the fact that it is the speakers and addressees only who are participating in an illocutionary act, while the agent in a propositional act may be anyone.

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sometimes taken also as a sufficient condition on the performance of that act, in which case sentences like (5.36a) can be taken as statements about what the agent of the volitional act actually did. A similar argument would show that forgetting to perform a volitional act, a sufficient condition on the non-performance of that act (or rather not forgetting to perform a volitional act, a necessary condition on the performance of that act), has the same behavior.

In the framework presented here, implicative verbs are simply verbs which denote logically necessary conditions on the truth of a predication of a volitional act of someone. Thus to perform the propositional act of predicating of an agent that he performs a volitional act V, you must believe that that agent manages to, remembers to, doesn't fail to, doesn't decline to perform V,

and so forth through the list of implicative verbs. When you predicate of an agent that he manages to, remembers to, doesn't fail to, or doesn't decline to perform V, you may indirectly perform the propositional act of predicating that the agent does V, of which more will be said when we discuss invited inferences in the next chapter.

We cannot analyze implicative verbs as verbs which denote predication which is <u>presupposed</u> by the predication of a volitional act because if they were so analyzed, we would be in effect claiming that before a predication of a volitional act V can be <u>meaningful</u>, it must be the case that one believes that the agent of V manages to, remembers to, etc., perform that act. But it would be nonsense to say the proposition that "John sucks eggs" is meaningless when John doesn't manage to suck eggs. The proposition is simply false, not meaningless.

What we have in implicative verbs is a denotation of <u>truth</u> conditions on the propositional act of predicating a volitional act, while presuppositions are <u>meaningfulness</u> conditions. Truth conditions and meaningfulness conditions are similar in that they may both be the basis for the qualification of propositional acts by <u>if</u> clauses. Consider the examples in (5.38).

(5.38) a. John played pool last night, if he
b. managed to.
c. chose to.
d. didn't neglect to.
didn't refuse to.

e. John didn't play pool last night, if he
f. didn't manage to.
g. didn't choose to.
h. neglected to.
refused to.

These sentences as well as all having a causal interpretation all have an interpretation where the if clause is qualifying a truth condition on the main clause, as shown by the paraphrases in (5.39) - (5.42).

(5.39) a. John played pool last night, or perhaps he
b. didn't manage to.
c. didn't choose to.
d. neglected to.
refused to.

(5.40) a. John didn't play pool last night, or perhaps he
b. managed to.
c. chose to.
d. didn't neglect to.
didn't refuse to.

(5.41) a. John played pool last night, or
b. did(n't) he manage to?
c. did(n't) he choose to?
d. did(n't) he not neglect to?
did(n't) he not refuse to?

(5.42) a. John didn't play pool last night, or did he
b. manage to?
c. choose to?
d. not neglect to?
not refuse to?

It is no accident that (5.39), (5.40), (5.41), and (5.42) seem to have interpretations as (5.43), (5.44), (5.45), and (5.46) respectively.

(5.43) John played pool last night, or perhaps he didn't.

(5.44) John didn't play pool last night, or perhaps he did.

(5.45) John played pool last night, or did(n't) he?

(5.46) John didn't play pool last night, or did he?

There are two possible explanations for this. One would be that the implicative verbs in the continuations are all simply used implicatively and thus we don't have qualification of truth conditions here, but only an indirect conveyance of (5.43) - (5.46) by means of the use of implicative verbs. The problem with this explanation is that the continuation of a sentence like (5.39b) for example can be interpreted as a statement about what John chose to do, where chose is a nonimplicative. Thus (5.47) is perfectly acceptable with what is presumably a nonimplicative use of choose, in which case John's choosing to play pool would not imply that he played pool and the correspondence we are discussing would be unexplained.

(5.47) John didn't play pool last night, or perhaps he chose to instead of choosing another pastime.

A more tenable explanation of the correspondence between (5.39) - (5.42) and (5.43) - (5.46) is that the qualification of propositional acts by reference to truth conditions amounts to bringing the truth of those propositions into question (while qualification by reference to presuppositions brings meaningfulness of propositions into question). Then the utterances in (5.39) - (5.42) and (5.43) - (5.46) are similar

to each other in that they all amount to the assertion of an utterance of qualified truth. However, (5.39) - (5.42) differ from (5.43) - (5.46) in that the former have indication of which truth condition causes the questionability of the truth of the proposition, while the latter do not.

It is tempting to draw a parallel between presuppositions of propositional acts and essential intrinsic conditions on illocutionary acts on the one hand and between truth conditions and non-essential intrinsic conditions on the other. It might be said, for example, that just as an illocutionary act will be void if an essential intrinsic condition is false, a propositional act will be void, that is meaningless or without truth value, if a presupposition is violated. Further, just as an assertion will count as an assertion and yet be insincere if an intrinsic condition on insincerity is violated, certain types of propositions (e.g. propositions predicating a volitional act) will count as propositions and yet be false if a truth condition is violated. However, this parallelism is not supported by our examination of qualification of illocutionary and propositional acts, since we have seen that illocutionary acts may only be qualified on the basis of non-essential intrinsic conditions, while propositional acts may be qualified on the basis of some presuppositions, as well as on the basis of truth conditions.

CHAPTER VI

INVITED INFERENCES

In this chapter, we attempt to show that invited inferences in the sense of Geis and Zwicky (1971) are indirect propositional acts. Our demonstration will consist of showing that most of the cases of invited inference discovered so far (by Geis and Zwicky (1971) and Horn (1971)) can be explained as arising from truth conditions on (i.e., logical inferences from) propositional acts, just as indirect illocutionary acts can be explained as arising from intrinsic conditions on those illocutionary acts.

The mechanism for generating a proposition P which invites the inference of another proposition Q, will be said to be as follows: Q is replaced with a logically necessary condition for the truth of Q, that is, a truth condition on Q. The resulting proposition P will then invite the inference Q.

The paradigm example of invited inferences discussed by Geis and Zwicky (1971), that of conditional perfection, is easily explained in the above terms. Conditional perfection is the process by which sentences like those given in (6.1) invite the inference of the propositions expressed by the corresponding sentences in (6.2). (Examples from Geis and Zwicky.)

(6.1) a. If you mow the lawn, I'll give you five dollars.

b. I'll flunk you if you don't start coming to class.

(6.2) a. If you don't mow the lawn, I won't give you five dollars.

b. I won't flunk you if you start coming to class.

The sentences in (6.2) are <u>suggested</u> by the sentences in (6.1). A general statement of the principle behind such invited inferences is (from Geis and Zwicky):

(6.3) A sentence of the form $X \supset Y$ invites an inference of the form $\sim X \supset \sim Y$.

Concerning this principle, it is pointed out that "it should be understood that [the] principle and any other like it, has force only when it is not contravened by other assertions or beliefs."

In other words, the principle of conditional perfection behaves in our terms like indirect illocutionary acts, which may only be performed if nothing in the situation makes it clear that the utterance used to perform the indirect act should be taken literally.

If we analyze the utterances of (6.1) as having the invited inferences given in (6.4) below rather than those given in (6.2), we will not do any violence to the notion of conditional perfection.

(6.4) a. If and only if you mow the lawn will I give you five dollars.

b. If and only if you don't come to class will I flunk you.

In fact, since we are speaking of the <u>perfection</u> of conditionals, it would seem better to formulate the principle of conditional perfection as in (6.5) rather than as in (6.3).

(6.5) A sentence of the form X ⊃ Y invites an inference of the form X≡Y.

There does not seem to be much difference between the formulations in (6.3) and (6.5) as far as their effect is concerned, since the only change is that in (6.5) the invited inference is a conjunction of the invited inference given in (6.3) and the proposition literally expressed by a sentence of the form X ⊃ Y. However, we can now explain conditional perfection as an example of the general process of substituting a logically necessary condition on the truth of a proposition for that proposition, since (6.6a) is a tautology.

(6.6) a. $(X \equiv Y) \supset (X \supset Y)$

b. $(X \equiv Y) \supset (\sim X \supset \sim Y)$

Since (6.5b) is also a tautology, our account makes the claim that for example (6.7a) and (6.7b) both invite the same inference, that of (6.7a).

(6.7) a. If you come here, I'll show you something.

b. If you don't come here, I won't show you something.

c. If and only if you come here will I show you something.

In Geis and Zwicky's account, (6.7a) invites the inference of (6.7b) and vice versa. There seems to be no internal evidence which would allow one account to be preferred over the other. However, by using the approach taken here, we can provide a general account of some other cases of invited inference which must be viewed by Geis and Zwicky as processes different from conditional perfection.

Before continuing, however, it should be noted that not all cases of tautologies based on logical implication can be the basis

for invited inferences. For example, (6.8) is a well-known tautology, yet it cannot be said that asserting AvB invites the inference of A (example from Arnold Zwicky, personal communication).

(6.8) $A \supset AvB$

This shows that we must restrict our use of the term 'logic' so as not to encompass all of propositional calculus. We may do this by stipulating that by <u>logic</u> we mean <u>natural logic</u> in the sense of Lakoff (1970b). Thus we consider Lakoff's meaning postulates to be examples of truth conditions on propositional acts which can be the basis for invited inference. Two of Lakoff's meaning postulates are given in (6.9) and examples of their use to invite inferences are given in (6.10).

(6.9) a. CERTAIN(S) $\supset$ POSSIBLE(S)

b. INTEND (X,S) $\supset$ BELIEVE(X,(POSSIBLE(S))

(6.10) a. I think it is possible that you are wrong. $\xrightarrow{i.i.}$ I think it is certain that you are wrong.

b. I believe it is possible for me to talk Fred out of jumping. $\xrightarrow{i.i.}$ I intend to talk Fred out of jumping.

We hypothesize then that all and only postulates and theorems of natural logic involving implication may be the basis for invited inferences.

Another case of invited inference according to Geis and Zwicky is what they call inferred causation, in which sentences expressing a temporal sequence of events invite the inference that the event prior in time is a cause of the subsequent event. (Note that the word <u>subsequent</u> itself has causal implications, although it is strictly speaking a predicate concerning temporal ordering.) Some

examples are:

(6.11) a. After finishing his dissertation, Fred was ready for the nuthouse.

b. Having eaten a whole goose, Wolfe was in a pleasant mood.

c. I looked at her and realized how small her ears were.

To relate this phenomenon to that of conditional perfection, we need only note that it is a necessary condition on the truth of a predication that event A causes event B that A precede B temporally. Thus again we have an example of the substitution of logically necessary conditions on propositions for those propositions.

A third case of invited inference is pointed out by Horn (1971), who observes that sentences containing optional implicative verbs (like remember (to), choose (to), and be intelligent enough (to)) actually may be said to invite the inference of their complements, rather than to optionally presuppose them, as Karttunen (1971) would have it. We have already seen in the last chapter that implicative verbs denote predicates which are logically necessary conditions on the truth of a predication of a volitional act. Thus, our general principle immediately accounts for the indirect propositions expressed by sentences like (6.12), and why these indirect propositions are not always conveyed.

(6.12) a. George remembered to shuffle.

b. Mary chose to be anonymous.

c. Max was intelligent enough to keep quiet.

To perform a volitional act, it is necessary to remember to perform

it, choose to perform it, and be intelligent enough to perform it. However, these conditions are not logically sufficient conditions on performing a volitional act.[21] Therefore it is possible to

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[21]By this account, those speakers of English who find the verb remember (to) to be obligatorily rather than optionally implicative in their dialect must have a different truth condition on volitional acts, one which has it that remembering to perform a volitional act is a logically necessary and logically sufficient condition in the performance of that volitional act. That is, such a speaker would not be able to imagine any situation in which one could remember to do something and yet not do it. This must ultimately be accounted for as a difference in meaning of the verb remember (to) since the logically necessary and sufficient conditions we have been discussing must follow from the meanings of the predicates involved. The same remarks apply to several other of Karttunen's (1971) obligatory implicative verbs which the writer finds to be optionally implicative in his dialect.

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imagine situations where one remembered to do something, chose to do something, or was intelligent enough to do something and yet did not do it. It is in just such situations that sentences like (6.12) do not invite the usual inference.

We have been claiming that what we are concerned with here are indirect propositional acts so far with no justification, since we have only considered examples of assertions. However, as (6.13) shows, we may make the substitution we have been examining in other sorts of illocutionary acts without having any effect on the illocutionary force involved.

(6.13) a. Will you kiss me if I'm good? $\xrightarrow{\text{i.i.}}$ Will you kiss me if and only if I'm good?

b. Do you feel better after that? $\xrightarrow{\text{i.i.}}$ Do you feel better because of that?

c. Remember to write! $\xrightarrow{\text{i.i.}}$ Write!

While we can thus easily account for the behavior of optional implicative verbs in various illocutionary acts, we as yet have no way of explaining why optional implicative verbs may be, in fact must be, implicative in negative assertions as in (6.14).

(6.14) a. John didn't remember to duck. → John didn't duck.

b. Warren didn't choose to answer. → Warren didn't answer.

c. Mary wasn't intelligent enough to cope with her problems. → Mary didn't cope with her problems.

If we recall the correspondence between necessary and sufficient conditions, that if A is a necessary condition for B, then ~A is a sufficient condition for ~B, we see that the sentences in (6.14) are examples of the substitution of a logically sufficient condition for the truth of a proposition for that proposition. Since the condition is a sufficient one, the inference is not merely invited; it can't be avoided. However, in spite of this, these sentences still seem to have an ambiguity in that either they may be construed as primarily about remembering, choosing, or intelligence, or they may be construed as being primarily about the non-performance of the act indicated in the complement. In the cases of conditional perfection and inferred causation, the same ambiguity seems to exist (given our analysis of conditional perfection). That this is a real ambiguity is shown by a comparison of (6.15a) and (6.15b).

(6.15) a. *I helped Mary to be intelligent enough to be a genius.

b. I helped Mary to be intelligent enough to cope with her own problems.

Verbs like help which normally require a pro-agentive complement with an agentive interpretation (Lee, 1971), i.e., require a complement denoting a volitional act, can take complements having be intelligent enough as the main predicate but only when the inference of the performance of the volitional act which is denoted by the complement of be intelligent enough is invited.

Criticize is another verb like help, and, as we see in (6.15a) and (6.16b), not be intelligent enough can act just like be intelligent enough does in (6.15).

(6.16) a. *I criticized Mary for not being intelligent enough to be a genius.

b. I criticized Mary for not being intelligent enough to cope with her problems.

c. *I helped Mary not to be intelligent enough to frighten Max.

d. I helped Mary not frighten Max.

However, as (6.16c) shows, there are some cases where it is not possible to substitute a sufficient condition on a proposition for it and still maintain acceptability. Since (6.16d) is acceptable, we would expect to find (6.16c) also acceptable, because we have substituted a complement which gives the inference of the proposition which is the complement of help in (6.16d). The most obvious explanation for why (6.16c) is unacceptable is that in this context the complement is being used with its literal rather than inferential reading. This means however that sentences like (6.14c) must be considered to be ambiguous as to a literal or inferential reading even though the inference is strictly speaking not invited but unavoidable.

A similar argument cannot show that obligatorily implicative verbs like manage (to) and happen to, which denote predicates which are conditions both logically necessary and logically sufficient for the truth of a predication of a volitional act, also are ambiguous between a literal and an inferential reading, because all of these verbs apparently denote volitional acts in the literal sense. However, sentences like (6.17) do seem to be ambiguous in the same way the sentences in (6.14) seem to be.

(6.17) John managed to arrive late.

That is, (6.17) can be construed as being about managing or about arriving late.

Because of the ambiguity of sentences with strict inferences, it appears necessary to abandon the term invited inference (as opposed to strict inference) and instead talk about the performance (or lack of performance) of an indirect propositional act. Such a performance would be carried out by substituting a logically necessary or a logically sufficient condition on the truth of a proposition for that proposition.

There is a problem, however, in admitting the performance of indirect propositional act with logically sufficient conditions in that the left hand sides of all natural implications which are truth conditions on propositional acts should then be able to be used to convey the right hand sides. Thus (6.18), which was the basis for conditional perfection, should also constitute the basis for an indirect propositional act like that in (6.19).

(6.18) $(X \equiv Y) \supset (\sim X \supset \sim Y)$

(6.19) I'll go if and only if John comes. $\xrightarrow{\text{i.i.}}$
I'll go if John comes.

However (6.19) is obviously not a case of invited inference, so it cannot be said that we are generally able to perform propositional acts by using logically sufficient conditions on those acts. In fact the only cases we are aware of are those involving implicative verbs. We have no explanation for this.

We next notice that indirect propositional acts cannot be based on presuppositions. Thus neither (6.20b) or (6.20c) can be considered to be an indirect propositional act performed by (6.20a), and similarly for (6.20e) or (6.20f) from (6.20d). (6.20a) does seem to suggest (6.20b) in a way, but this can probably be explained by reference to Grice's (1968) maxim of conversational implicature that one makes one's contributions to a conversation as informative as necessary.

(6.20) a. John came.

b. Only John came.

c. Not only John came.

d. John used to beat his wife.

e. John has stopped beating his wife.

f. John hasn't stopped beating his wife.

This surely is not simply a matter of a condition on the proposition expressed by (6.20a). Moreover, (6.21a) certainly cannot be construed as (6.21b) without contrastive stress on John.

(6.21) a. Did John come?

b. Did only John come?

A simple explanation for why presuppositions cannot be the basis for indirect propositional acts suggests itself when we consider what would happen if such indirect acts were possible. Namely, it would often be impossible for a hearer to decide whether an act were being performed which was positive or negative. Thus, for example, one might not be able to decide whether (6.20b) or instead (6.20c) was the proposition conveyed by (6.20a). Thus we may hypothesize that indirect propositional acts cannot be based on presuppositions because presuppositions are presupposed by both a proposition and its negative and thus there would be a fatal falling together of indirect propositions and their negations if presuppositions were so used.

We have not examined all known cases of invited inference but perhaps enough to justify the treatment of them suggested here. Given our hypothesis that it is natural truth conditions on propositional acts which give rise to invited inferences, it should be possible to examine a number of such truth conditions and arrive at a much larger collection of invited inferences than now exists.

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Tipologiia kauzativnykh konstruktsii

N. Nedialkov and G. Silnitskii

The Typology of Causative Constructions

Translated from Russian by Richard H. Wojcik

0. Translator's Note

"Tipologiia kauzativnykh konstruktsii" serves as the first article in a collection of articles under the title Tipologiia kauzativnykh konstruktsii. Morfologicheskii kauzativ. ANSSSR, Institut IAzykoznaniia, Leningrad, 1969. The analysis of causation in this article is the basis for all the articles in the collection. Therefore, those who want to read the book may find this translation a useful place to start. I also hope that it will provide useful insights for linguists who are studying causation in general.

In translating example sentences from Russian, I have chosen to give the Russian in Library of Congress transliteration, followed by a more or less literal translation. Occasionally, I have given the Russian word, as well as my English translation of it, for technical terms which seem most crucial in the text.

I am particularly grateful to Arnold Zwicky, who found time to criticize the initial version of this translation.

1. The basic object of study in this section is the class of Causative Constructions (CC).[1] The size of the class CC is determined not by inner markers, but by outer markers, i.e. not by the formal-grammatical characteristics of its own elements,[2] but by their relationship with a specific class of units at the referential or ontological level--with the class of Causative Situations (CS). Any construction that expresses a CS will be considered "causative".

The study procedes from the referential level to the grammatical. Therefore, the concept of CS is initial.

In the majority of cases, CC are related to corresponding non-causative constructions (cf. *ia zastavil ego uĭti* 'I caused him to leave'--*on ushël* 'He left'; *ia ispugal ego* 'I frightened him'--*on ispugalsia* 'He became frightened'. The latter are determined by more or less complicated semantic, syntactic, and morphological transformations (see, in part, 7 and 14). Constructions of this type will be called "noncausative correlates" of corresponding CC.

2. Reality can be conceived as a great number of events or situations. There are simple situations, which one may call "microsituations".

This type of situation is expressed, for example, in the sentences Svetit solntse 'The sun shines' and Kukuet kukushka 'The cuckoo cuckooes'. Microsituations contain two terms [konstanty]: the topic [predmet] (which we shall signify by r) and its state [sostoianie] (s).[3] Thus, in the above examples, the topic is expressed by solntse 'sun' and kukushka 'cuckoo', and the state by svetit 'shines' and kukuet 'sings'.

The term "state" does not retain here the meaning attributed to it in linguistics, for example, in the delineation of some subclasses of words (cf. verbs of state as opposed to verbs of action). Roughly speaking, a state is everything that can be expressed in language by some predicate form (on bezhit 'He runs', emu stydno 'he is shamed', on student 'he is a student', ona upala 'she fell', etc.).[4]

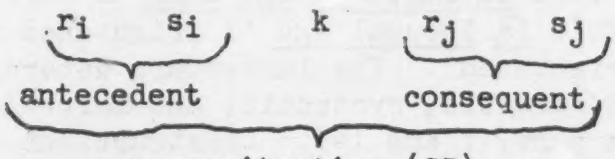
Besides simple situations, there are complex situations. These may be called "macrosituations". The following serve as examples of sentences that express macrosituations: On vidit, kak ona p'ët vodu 'He sees how she drinks water'; On znaet, shto ona prishla 'He knows that she came'; Kogda on vernulsia, my seli za uzhin 'When he returned, we sat down to supper'; My vernulis', tak kak isportilas' pogoda 'We returned, since the weather had worsened'. Macrosituations of the type expressed in the last example will be called causatives. CS are also expressed by the following examples: Tvoia bestaktnost' vynudila ego uiti 'Your tactlessness compelled him to leave'; My vernulis' iz-za dozhdia 'We returned because of the rain'; ego rasskaz vzvolnoval vsekh 'His story upset everyone', etc.

A spontaneously constructed CS comprises at least two microsituations, which are connected to each other by the relation of causation (k). In this work, we will consider causation to be synonymous with the cause-effect relationship.

A causing microsituation is called the "antecedent", and a caused microsituation is called the "consequent". Thus, in the first example of a CS given above, the sentence Isportilas' pogoda 'The weather had worsened' expresses the antecedent, and My vernulis' 'We returned' expresses the consequent.

The causal relation k is a term of the CS. This term is a determining factor in the causative macrosituation, since it organizes the macrosituation. Besides this organizing term, the CS has four other terms: the agent [agens], or the topic of the antecedent (r_i), the causing state (s_i), the patient [patiens], or the topic of the consequent (r_j), and the caused state (s_j).

Your mistake caused him to leave.



The causative situation is described by the following string of symbols:

$$CS = [r_i s_i] \; k \; [r_j s_j]$$

If not all the terms of the CS have an expression in a CC. the CC will be called "semantically elliptical". By this, we do not mean the lack of a corresponding term in the CS. We are concerned with ellipsis at the semantic level, i.e. at the level where the speaker makes up the concept of the CS. Therefore, a semantically elliptical CC can be nonelliptic grammatically.

Regarding the two terms of state (s_i, s_j), the latter plays a much greater substantive role than the first. The caused state is the final goal of the CC, its final state "at output", and it usually represents the greatest interest for the speaker and the listener. However, the causing state (which one could also call "the means of the agent's action" or "the means of causation") represents an intermediate factor in the cause-effect chain described by the CC, and, therefore, it seldom finds a place in the first formulation. This term often does not have an expression in the CC; cf. ego (r_i) khod (s_i) zastavil (k) protivnika (r_j) sdat'sia (s_j) 'His move forced the opponent to concede' and On (r_i) zastavil (k) protivnika (r_j) sdat'sia (s_j) 'He forced the opponent to concede'. The second CC, where the s_i term has no expression, is semantically (but not grammatically) elliptical. In both examples, the verb zastavit' 'to force' fully realizes its necessary syntactic valence. Consider, also, the following syntactically complete CC: Druzhnymi zabastovkami (s_i) rabochie (r_i) zastavili (k) khoziaev kontserna (r_j) otstupit' (s_j) 'With friendly demonstrations, the workers forced the owners of the business to give in'. Of all the terms, the s_i term has the least short expression. The means of causation may include a great number of different components which are difficult to account for and which are determined by near or distant, preceding or following, contexts. Thus, for example, a full explanation of the means of causation in a CC of the type Oni zastavili eë uekhat' 'They caused her to leave' may require the perusal of several pages of text. Moreover, such an explanation may not even be present. In this work, we do not propose to give an exhaustive list of all the factors that make up the means of causation in all concrete cases: in each individual s_i only the factor of greatest importance is considered. Thus, in the CC On ugovoril menia uĭti 'He persuaded me to go', the speech of the agent (he said that...) is understood under s_i. Additional semantic nuances (logical argument, length of influence on the object, etc.) are not considered.[5]

3. Since the organizing term of the CS is k, the CC is distinguished first of all in its ability to express causation.

In the suprasegmental expression of causation, k is not expressed in any discrete element of the CC, but in the whole grammatical structure related to the specific CS: My vernulis'; poshël dozhd' 'We returned--it was raining'; Istrativ poslednie dengi, on sidel na khlebe i vode 'Having lost his remaining funds, he sat down to bread and water'. The causativity of this type of construction is optional

(This is the periphery of a CC), since it is determined by its actual lexical composition. Thus, for example, not every participial phrase has a causative meaning: Prisëv na kortochki, on razduval kostër 'Having squatted down, he stirred up the fire'.

In non-suprasegmental expressions, the causation of the term k finds expression in a specific, discrete element of the CC, which it would be appropriate to call the "causative link"[6] (so long as the causal relation designated by the link inter-connects two microsituations on the referential level). CC of this type will be called "linking" [sviazochnye] as opposed to "nonlinking" CC of the above type.

4. We distinguish subordinate [sluzhebnye] and autonomous [znamenatel'nye] links as a mark of the relatedness between causative links and subordinate or autonomous parts of speech. Some may be consequential [sledstvennymi] and some may be causal [prichinnymi].

Dependent causative links break down into 1) conjunctions (consequential: Poshël dozhd', poetomu my vernulis' 'It rained, therefore we returned'; causal: My vernulis', tak kak poshël dozhd' 'We returned since it was raining') and 2) prepositions (also postpositions): My vernulis' iz-za dozhdia 'We returned because of the rain.'

Autonomous links are categorized into 1) nouns (causal: Tvoia bestaktnost'--prichina ego ukhoda 'Your lack of tact is the reason for his departure'; Ty vinovat v ego ukhode 'You are the guilty one in his departure'; Ego ukhod--sledstvie tvoeĭ grubosti 'His departure is the result of your impoliteness') and 2) verbs: Ia zastavil ego uĭti 'I caused him to go'; Ego oshibka privela k nashemu porazheniiu 'His mistake led to our downfall.'

5. From a semantic point of view, causative links are categorized initially as to whether they express the term s_j (caused state) along with causation.

Causative links expressing s_j will be called "resultative". Links expressing s_i will be called "instrumental".

Resultative links are classified as 1) three-term, which express k, s_j and s_i (instrumental resultatives: podozvat' 'beckon over', zastrelit' 'to shoot') and 2) two-term, which express k and s_j, but not s_i (noninstrumental resultatives: ubit' 'to kill', ispugat' 'to frighten').

Resultative links are most often verbs. However, in some cases, they may be nouns. For example, in Chukcha: ŋiŋ̣kej$_1$ kiməw$_2$-kew$_3$-u it-ə-rkən$_4$ 'The boy$_1$ is the cause$_3$ of the absence$_2$ (of somebody who is clarified in the context)' (-u is the marker of the purposive [naznachitel'nogo] case of the noun). Consider also in German: Er empfand Liebeskummer 'He felt suffering from love'--Seine Liebe brachte ihm viel Kummer 'His love caused him much suffering'; Er war zornrot 'He was red with anger'--Er war rot von Zorn. In the Chukcha example, the nominal kiməw-kew represents a two-term noninstrumental nominal link; in the German examples, the nominal Liebeskummer represents a three-term instrumental noun link, as does the adjective zornrot.

Causative links not expressing s_j will be called "nonresultative". They are classified as 1) two-term instrumentals (verbs: velet' 'to order', prosit' 'to request', razreshit' 'to allow'; nouns: prikaz 'order', pros'ba 'request', razreshenie 'permission') and 2) one-term noninstrumentals (all the dependent links--conjunctions and prepositions--belong here, and also the overwhelming majority of nominal links (for individual exceptions, see above) and a group of verbal links--verbs of the type zastavit' 'to cause', vynudit' 'to lead', etc.).[7]

We call attention here to those causative verbs which are usually considered dependent, i.e. verbs of the type Gm. lassen, Fr. laisser, Eng. to make, etc.[8]

6. Out of all the morphological causative links--conjunctions, prepositions, nouns, verbs--the last item is of special interest, since the verbal link is not only semantically, but also grammatically, the core of the sentence. In consequence of this, the verbal link is the basic object of study in this work. All verbs that can fill the role of links in the CC (i.e. that express causation by themselves or in combination with other terms) comprise the class of causative verbs (CV).

The semantic classification of CV can be represented by the following chart:

	Nonresultative	Resultative
Noninstrumental	One-term ("k") zastavit' 'to cause'	Two-term ("ks_j") ispugat' 'to frighten'
Instrumental	Two-term ("s_ik") prikazat' 'to order'	Three-term ("s_iks_j") podozvat' 'to beckon over'

Nonresultative CV (instrumental and noninstrumental) give rise to a whole semantic group that is in clear opposition to resultative CV. The semantic nearness of instrumental and noninstrumental CV (prikazat' 'to order'--zastavit' 'to cause') is aggravated by what we mentioned above--the term that expresses the instrument, but not the result, is the least specific of all terms. Therefore, it is not always possible to distinguish clearly instrumental from noninstrumental CV (nonresultative as well as resultative).

One should add that one and the same verb in its various meanings can refer to different semantic subclasses; cf. ja vyzval ego [na ulitsu] 'I called him out [onto the street]' (instrumental resultative CV pozvat', poprosiv vyjti 'to call, having requested to come out')--ego prikhod vyzval vseobshchee udivlenie 'His arrival evoked universal surprise' (noninstrumental nonresultative CV vozbudit' 'to arouse').

7. Two-term and three-term CV have complex lexical meanings which contain one or two additional terms as well as the basic term k. The additional terms may have an independent lexical realization in the same language as a rule. Any lexical unit (a word or combination of words) which expresses one of these additional terms in a "pure" sense, i.e. without the meaning of causation accompanying it, will be called a "non-causative correlate" of the corresponding CV--a CV that expresses the additional term in combination with the term k.

Since a CV in a structure of complex meaning is able to introduce two additional terms (s_i and s_j), which can also appear jointly, it is necessary to distinguish three types of noncausative correlates for the CV: 1) Resultative CV correspond to the resultative noncausative correlates: ispugat' 'to frighten' (ks_j)--ispugat'sia 'to be frightened' (s_j); 2) instrumental CV correspond to instrumental noncausative correlates: velet' 'to order' (ks_i)--skazat' 'to speak', napisat' 'to write', etc. (s_i)[9]; 3) three-term CV have noncausative correlates of both types simultaneously: podozvat' 'to call over' (ks_is_j)---skazat' 'to speak', kriknut' 'to shout', etc. (s_j).[10]

Two-term and three-term resultative CV differ in their relationships with the noncausative correlates.

Two-term CV (not expressing s_i) usually enter into a more direct one-to-one relationship with their noncausative correlates (e.g. ubit' 'to kill'--umeret' 'to die'). Three-term CV (expressing s_i) more often do not enter into a direct one-to-one relationship with their noncausative correlates. This is explained by the fact that one and the same s_j can usually be the result of different s_i, and, conversely, the same s_i can have various s_j as its result. Thus, the noncausative correlate umeret' 'to die', which has been extracted above, relates to a whole group of three-term CV (povesit' 'to hang', kaznit' 'to execute', zastrelit' 'to shoot', rasstrelîat' 'to machine-gun', zadushit' 'to smother', zadavit' 'to run over', zarezat' 'to stab (to death)', zarubit' 'to slash (to death)', etc.). On the other hand, one and the same three-term CV vyteret' 'to wipe dry, clean' is related to two noncausative correlates (byt' sukhim 'to be dry', byt' chistym 'to be clean'), each of which has its own respective two-term CV (cf. byt' sukhim 'to be dry'--vysushit' 'to dry', byt' chistym 'to be clean'--vychistit' 'to clean').

8. Each word of the CC that expresses a term is a junction [uzlom]. Thus, the causative link is a junction. The link may express more than one term.

Non-linking junctions make up the environment of the link. This environment consists of two parts or segments which correspond to the two microsituations of a given CS in the referential schema.

If both terms of the microsituation find expression in a segment, then the segment is complete [polnyĭ] and consists of two junctions. In the following CC, both segments are complete: ego prikhod/zastavil/menîa uĭti 'His arrival caused me to leave'.

If only one of the terms of a microsituation finds expression in a segment, the segment is called "incomplete". Two cases are possible: 1) The second term of a microsituation, which has no

expression in the segment, may enter into composition with the lexical meaning of the link: such segments are called "implicational" since their unexpressed terms are implied by the link. In the CC ía/podozval/ego 'I called him over', both segments are implicational. Correspondingly, the link is three-term.

2) Sometimes the second term of a microsituation which is left unexpressed in the segment does not enter into construction with the lexical meaning of the link, nor does it have any expression in the CC at all. Such segments are called "nonimplicational". In the CC ía/ispugal/ego 'I frightened him', the first segment is nonimplicational, and the second is implicational. In the CC ía/prikazal/emu uĭti 'I ordered him to leave', the first segment is implicational, and the second is complete.

Nonimplicational segments, of course, are indicative of semantic ellipsis.

9. Segments, as well as the verbal link, can be expanded [rasprostranennymi]. The expanded segment or link is understood to be an aggregate of non-junction elements in the CC (i.e. words that do not express terms) which have a direct syntactic relation with the junction elements of the segments or the verbal link. Thus, in the CC vysokiĭ ĭunosha/vezhlivo priglasil/eë na tanets 'The tall youth gaily invited her to dance', the adjective vysokiĭ and the adverb vezhlivo comprise, respectively, the expansion of the first segment and the verbal link.

Complete, as well as incomplete segments, may be expanded. It is a little difficult to tell the difference between expanded incomplete segments and nonexpanded complete segments whose junctions are connected by an attributive relationship. The referential connection of a particular word serves as the criterion for differentiating the two types of segments. A particular word may express the topic of the microsituation (vysokiĭ ĭunosha/priglasil/eë na tanets 'The tall boy invited her to dance'--the first segment is complete and expanded). On the other hand, a particular word may express the state (ego prikhod/razveselil/vsekh 'His arrival cheered everyone'--the first segment is complete and nonexpanded).

The incomplete segment represented by a demonstrative pronoun may be expanded by a whole subordinate clause: to, shto on ne vernulsia/zastavilo/vsekh zavolnovat'sia 'That [fact], that he didn't return, caused everybody to get upset'; vse rasstroilis'/iz-za/togo, shto progulka ne sostoialas' 'Everyone broke up because of that [fact], that the trip did not take place.'

10. Segments (complete and incomplete) break down into two kinds according to their referential connections.

The segment which expresses (fully or partially) the antecedent of the CS will be called the "antecedent segment". That which expresses the consequent will be called the "consequent segment".

For example, in the CC ego poiavlenie/vyzvalo/obshchiĭ smekh 'His appearance evoked general laughter', the first segment is the complete segment of the antecedent, and the second is the complete

segment of the consequent. In the CC my vernulis'/iz-za/dozhdia 'We returned because of the rain', the first segment is the complete consequent segment, and the second is the incomplete antecedent segment, etc.

11. According to their syntactic position in the CC, segments are divided into primary (sg. 1) and secondary (sg. 2) segments. The concept of primary and secondary segments is not at all determined by the linear order of the elements in the CC.

The syntactic position of segments is determined relative to that of the grammatical subject. Three basic types are possible:

If only one segment contains the junction which functions as grammatical subject, that segment is primary and the others are secondary:

tvoi prikhod / zastavil / ego uĭti
your arrival caused him to go

sg. 1 causative link sg. 2

If two (or more) segments contain junctions which function as grammatical subject (i.e. if we consider complex sentences), the segment that corresponds to the head of the sentence is primary:

my vernulis' / tak kak / nachalsia dozhd'
we returned since it began rain

sg. 1 causative link sg. 2

nachalsia dozhd' / poėtomu / my vernulis'
therefore

sg. 1 causative link sg. 2

If no segment contains a junction that fulfills the subject role, then the primary segment is the one that is located away from the subject in the least number of syntactic steps. "Syntactic step" refers to the distance between two directly related units. Two cases are possible:

1) The CC is syntactically complete, i.e. represents a whole sentence. The causative link plays the role of subject here:

prichina nashego ot"ezda zakliuchilas' v bolezni
cause of our departure consisted in sickness

brata
of brother

'The cause of our departure was the sickness of our brother.'

A clear positional difference in the segments is visible in this example: the segment nashego ot"ezda is one syntactic step from the subject and it is primary; the segment bolezni brata is two steps from the subject and it is secondary. The link prichina zaklíuchilas' v is a nominal expansion.

2) If the CC is syntactically incomplete and represents only part of the sentence, the differentiation of segments by position is very indeterminate, regardless of whether the causative link is the subject or not. For example:

a) prikaz komandira ob otstuplenii voĭsk
order of commander about deployment of troops

byl ochen'svoevremennym
was very timely

'The commander's order for troop deployment was very timely.'

b) on peredal prikaz komandira ob otstuplenii voĭsk
he passed on...

'He passed on the commander's order for troop deployment.'

In both examples, the CC (prikaz komandira ob otstuplenii voĭsk) is syntactically incomplete. In both cases, the two segments (komandira, otstuplenii voĭsk) are the same syntactic distance from the grammatical subject: one step in (a), and three steps in (b).

Thus, the differentiation between primary and secondary segments in a CC, i.e. the specification of the positional syntactic structure of the CC, turns out to be impossible. Therefore, only syntactically complete CC will be examined in this work.

12. Primary and secondary segments are obligatory: in a syntactically complete CC, they constitute the necessary environment for the causative link.

Along with these two necessary types of segments, the CC can also contain a third, optional type of segment. This segment is not necessary to the environment of the causative link, and it may be left out. In such a case, grammatical ellipsis has not occurred: (svoim krikom) on ispugal menía '(By his cry), he frightened me'; (Dokazav svoíu pravotu), on zastavil eë izvinit'sía '(Having proved that he was right), he caused her to excuse herself'.

The optional segment often expresses the s_1 term not expressed in the incomplete segment sg. 1 (see examples above).

Optional segments (to a much greater degree than obligatory ones) may undergo a shift in position, although such a shift in no way influences the syntactic function of the two obligatory segments and should not be taken as an inversion. Cf.: On ispugal menía svoim krikom 'He frightened me with his cry'; On zastavil eë izvinit'sía, dokazav svoíu pravotu 'He caused her to excuse herself, having shown that he was right'.

13. Let us now examine the relationship between positional types of segments and their semantic types.

When sg. 1 is the antecedent, the causative link is always consequential [sledstvennoĭ]. CC of this type will be called "non-inversive" [neinversivnymi]: My zastavili ikh vernut'sia 'We caused them to return'.

When sg. 1 is the consequent, the link is always causal [prichinnoĭ]. CC of this type will be called "inversive": Oni vernulis' iz-za dozhdia 'They returned because of the rain'.

14. Now we will examine complete segment types that are determined by the kind of syntactic relation between their junctions. From this point of view, segments break down into the following types.

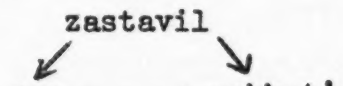
First of all, we make a distinction between segments that have mediated [oposredstvennymi] syntactic relations and those that have nonmediated syntactic relationships between their junctions.

We call a syntactic relationship nonmediated if it arises between two junctions without the use of a third junction. This type of relationship has two subclasses: subjectival (s)[11]--brat priekhal 'The brother arrived'--and attributive (a)--priezd brata 'the arrival of the brother, the brother's arrival'.

Note. Any segment with an attributive relationship can be replaced by an incomplete segment (x) within the boundaries of that CC (cf. Ego krik ispugal menia 'His cry frightened me'--On ispugal menia 'He frightened me'; My vernulis' iz-za bolezni brata 'We returned because of our brother's illness'--My vernulis' iz-za brata 'We returned because of our brother'). But not every incomplete segment can be replaced by an attributive one (On dobilsia moego solglasiia 'He obtained my agreement'; the incomplete sg. 1 cannot be replaced by an attributive segment). The symbol x in the following classifications will denote only those incomplete segments that cannot be replaced by an attributive segment; incomplete segments which are amenable to such a replacement will be considered functional variants of corresponding attributive segments. Thus, for example, sg. 1 in the CC Ego krik ispugal menia 'His cry frightened me' and On ispugal menia 'He frightened me' are functionally the same.

A demonstrative pronoun expanded by a subordinate clause often plays the role of an incomplete segment. To, shto my opozdali, rasserdilo ego 'That [fact], that we were late, angered him'; On rasserdilsia iz-za togo, shto my opozdali 'He got angry from that [fact], that we were late'; Ego bolezn' byla prichinoĭ togo, shto my vernulis' 'His illness was the cause of that [fact], that we returned'. An incomplete segment of this type can always be replaced within the confines of some construction by a full attributive segment. Cf. Nashe opozdanie rasserdilo ego 'Our lateness angered him'; Ego bolezn' byla prichinoĭ nashego vozvrashcheniia 'His illness was the case of our return', etc.

Mediated syntactic relationships are those that arise between two junctions by means of a third junction. Thus, in the CC Ia zastavil ego uekhat' 'I caused him to go', the relationship between the junctions ego 'him' and uekhat' 'to go' is mediated, since it is possible only because of a third junction--the link zastavil:



We will call the nonmediated relation nexus [neksusnyĭ] and it will be symbolized by n.

Nexus segments can be further subclassified into a) nexus verbal: sg. 2 in the CC On zastavil menia uĭti 'He caused me to go' and b) nexus nominal: sg. 2 in the CC Ego oshibka privela komandu k porazheniiu 'His mistake brought the team to defeat'; On dovël eë do slëz 'He brought her to tears', etc.

Both non-subjectival relationships can be turned into subjectival ones by one means or another. a → s: ego plach 'his crying' → on plachet 'He cries'; n → s: ego uĭti 'him to go' → on ushël 'He went'; komandu k porazheniiu 'the team to defeat' → Komanda poterpela porazhenie 'the team suffered defeat'; eë do slëz 'her to tears' → ona v slëzakh 'She is in tears', etc.

The subjectival operation on the resultative segment of a CC gives the noncausative correlate of the CC (see 1).

15. After the basic types of causative links and segments have been uncovered, there still remains the task of determining the basic types of relations between them, i.e. the types of CC themselves. The system of categories studied above was developed with Russian material as a basis. Its application to other languages may demand further study and specification.

The ability of each type of link to enter into construction with specific types of sg. 1 and sg. 2 is strictly limited. In the whole Russian language, there are 15 basic structural types of CC (T_1-T_{15} below).

Types of CC	sg.1	Causative link	sg.2	Types of CC	Causative link	sg.2
T_1	s	Preposition	a	T_9	s_ik	s
T_2	s	Conjunction	s	T_{10}	s_ik	a
T_3	x	Participle	a	T_{11}	s_ik	n
T_4	a	Noun	a	T_{12}	k	a
T_5	x	Noun	a	T_{13}	k	n
T_6	x	s_iks_j[12]	x	T_{14}	k	a
T_7	x	s_iks_j	n	T_{15}	k	n
T_8	a	ks_j	x			

We will illustrate each of these types. T_1: My vernulis' iz-za bolezni brata 'We returned because of our brother's illness'; Ia

znaiu ėto blagodaria ego soobshcheniiu 'I know this, thanks to his communication'. T_2: Nachalsia dozhd', poėtomu my vernulis' 'It began to rain, therefore we returned'; My vernulis' tak kak nachalsia dozhd' 'We returned, since it had begun to rain'; Poshël takoĭ dozhd', shto my vernulis' 'There was such a rain that we returned'; Poshël dozhd', i my vernulis' 'It rained, and we returned'. T_3: Ty vinovat v eë smerti 'You are guilty in her death'. T_4: Tvoia oshibka--prichina nashego porazheniia 'Your mistake is the reason for our defeat'. T_5: Ty vinovnik eë smerti 'You are the guilty one in her death'. T_6: On podozval menia 'He called me over'. T_7: Oni izbrali ego sekretarem 'They chose him secretary'; Oni nazvali syna ivanom 'They named their son Ivan'. T_8: Ego rasskaz rassmeshil menia 'His story made me laugh'. T_9: On prikazal (eĭ), shtoby ona ushla 'He ordered (her) that she leave'. T_{10}: On razreshil nash ot"ezd 'He allowed our departure'. T_{11}: Ia razreshil emu uĭti 'I allowed him to go'; Ia poprosil ego o pomoshchi 'I asked him for help'. T_{12}: Ego poiavlenie vyzvalo vseobshchiĭ perepolokh 'His ghost evoked universal fright'. T_{13}: Ego poiavlenie vynudilo nas udalit'sia 'His ghost forced us to move away'; Ego slova tolknuli eë na prestuplenie 'His words pushed her to crime'. T_{15}: On ostavil menia v pokoe 'He left me in peace'.

It is natural that some CV can serve to develop CC of different types (cf. examples T_{10} and T_{11}).

16. This work presents the first (and, in many respects, incomplete) study of a universal classificatory schema which would allow one to become oriented to the extraordinary panoply of CC in different languages.[13] Moreover, some of the established oppositions may become neutralized in some languages. For example, the opposition in sg. 2 between types s, a, and n neutralizes in Chinese. Only one Chinese type, ta lai, corresponds to the three types of sg. 2 in the following Russian examples: [Otets velel 'the father ordered] em priĭti 'him to come'; [Otets velel, shtoby 'the father ordered that'] on prishël 'he came'; [Otets razreshil 'the father allowed'] ego priezd 'his arrival'.

On the other hand, an introduction to additional criteria that do not contradict the above, but give it more concreteness, may be required in order to include all the true varieties of CC in different languages.

Using Russian, we shall examine a few cases in point.

Let us take, for example, T_1. According to the type of preposition which functions as the link in a given type of CC, the CC can be subclassified as follows:

1) CC with prepositions that always take a causative (and only a causative) meaning. Blagodaria iskusstvu khudozhnikova potolok kazalsia beskonechno vysokim 'Thanks to the skill of the artist, the ceiling seemed infinitely high'; Ostal'nye agregaty vvidu iznosa uzhe neskol'ko raz menialis' 'The remaining units, in view of their wear, had already been changed several times'; Vsledstvie tumana parokhod ne vyshel v more 'On account of the fog, the ship did not go out to sea'; Po prichine neudachnoĭ okhoty, nashi koni ne byli tak izmucheny 'Owing to the unsuccessful hunt, our horses were not so exhausted'.

2) CC with prepositions that can take causative as well as noncausative meanings (cf.: On vernulsia iz-za dozhdia 'He returned because of the rain' and On vyglianul iz-za dereva 'He looked out from behind a tree'). These meanings are determined by specific, systematic factors (whose explanation is not a part of the present study): Otets Natashi goriachitsia iz-za docheri 'Natasha's father is angry because of his daughter'; Ona vyshla zamuzh iz pokornosti k materi 'She got married out of obediance to her mother'; Iz razgovorov so starikom ia uznal uzhasnuiu novost' 'From conversations with an old man, I came to know terrible news'; Za otsutstviem doktora bol'nykh prinimal fel'dsher 'For lack of a doctor, the doctor's assistant saw to the sick'; Ia likvidiroval svoi knigi za nenadobnostiu 'I destroyed my books for lack of wanting them'; On pokrasnel ot stydy 'He reddened from shame'; Ot ėtikh knig v dushe u menia slozhilos' stoĭkaia vera v cheloveka 'From these books, I formed in my soul an abiding faith in man'; Oni possorilis' po nedorazumeniiu 'They quarreled over a misunderstanding'; Pod deĭstviem parov natriia on nachal zadykhat'sia 'Under the action of the sodium vapor, he began to choke'; On zabolel s goria 'He was sick from grief'; S neprivychki nogi bolĭat 'His legs ache from disuse'; Mnogo slëz ia cherez etu babu prolil 'Many tears I shed over this old lady'; Ona menia za muki polĭubila 'She loved me for my ugly face'.

3) CC with prepositions which don't usually have causative meaning but function as a causative link with a specific lexical filler in other places of the construction. In their normal usage, these prepositions most often denote static or dynamic space and time relationships: V ėtom kostĭume plechi ego kazalis' shire 'In this suit, his shoulders looked wider'; Na fotografii on vygliadel elegantnee 'In the photograph, he looked more elegant'; Pod ego tiazhëlymi sapogami skripel pol[14] 'Under his heavy shoes, the floor creaked'; Pod solntsem mets zasverkal 'Under the sun, the sword sparkled'; On sovershil ėtot postupok pri ikh blagosklonnom molchanii 'He completed this crime in their approving silence'; Pri svete luny eë glaza kazalis' sinimi 'In the light of the moon, her eyes seemed blue'; Pri vzgliade na neë on vzdrognul 'At the sight of her, he trembled'; On soznalsia pod naporom ulik 'He confessed under the pressure of evidence'. The following types of CC represent special cases: On u menia zarabotaet 'He will begin to work at my place'; U neë sbezhalo moloko 'At her place, the milk would boil over'; On postrigsia [u khoroshego parikmakhera] 'He got his hair cut [at a good barbership]'; Ia sshil kostĭum [u khoroshego portnogo] 'I got a suit made [at a good tailor]'.[15] In all these CC, the preposition u 'at' contains a junction that expresses animate agency.

> Note. CC of this type are often implicational, i.e. those in which some of the terms do not have a direct expression, but are implied by expressed terms: On postrigsia 'He got a haircut', On sshil sebe kostĭum 'He got a suit made', etc. In these examples, the term rj is implied. (cf.: On poprosil parikmakhera postrich' ego po poslednei mode 'He asked the barber to cut his hair in the latest style'). As we said above

(see 1), implicational CC are not a topic of study in this work; they will be examined in an independent study.

In T_{11} there are two clear subtypes: with the verbal sg. 2 (on prikazal / ei uĭti 'he ordered her to leave') and with the nominal sg. 2. Moreover, nouns in the nominal sg. 2 can take different cases. For example: Ia poruchil emu eto delo 'I assigned him this matter [Accusative]'; Ia razreshil emu osmotr pomoshcheniia 'I allowed him an inspection [Accusative] of the premises'; Ia obratilsia k nemu za sovetom 'I turned to him for advice [for + Instrumental]'; On prizyval rabochikh k bor'be 'He called the workers to the struggle [to + Dative]'; Ia poprosil ego o pomoshchi 'I asked him for help [about + Prepositional]'; Ia potreboval u nego ob"iasnenii 'I demanded explanations [Genitive] from him', etc.

T_{12} also differs in its nominal sg. 2 in a variety of ways, especially in the morphological formation of the second nominal junction. For example, Ia pomog emu v rabote 'I helped him in his work [in + Prepositional]'; Opyt nauchil ego ostorozhnosti 'The experiment taught him carefulness [Dative]'; Eë mol'by uderzhivaiut ego ot zapoia 'Her supplications keep him away from drink [from + Genitive]'; Ego primer spas eë ot unyniia 'His example saved her from dejection [from + Genitive]'; Zhizn' v gorode priuchila ego k odinochestvu 'Life in the city accustomed him to loneliness [to + Dative]'; Ego sovety predokhranili eë ot oshibok 'His advice protected her from mistakes [from + Genitive]'; On tolknul menia na ėtot postupok 'He pushed me to this crime [to + Accusative]'; Novye vpechatleniia otveli eë ot ėtoĭ mysli 'New feelings led her away from this thought [from + Genitive]'; Eë bolezn' vozlozhila na menia otvetstvennost' za deteĭ 'Her illness charged me with the responsibility [Accusative] for the children'; Ego vid navodit na menia tosku 'His look shoots weariness [Accusative] in my direction'; Ego slova pridali mne smelosti 'His words gave me courage [Genitive]'; Ego energiia privela nas k pobede 'His energy led us to victory [to + Dative]'; Gore dovela eë do samoubiĭstva 'Grief led her to suicide [to + Dative]'; Tvoĭ uprek ne daët emu pokoia 'Your reproach does not give him comfort [Genitive]'; Maleĭshiĭ pustiak vyzyval u neë slëzy 'The smallest thing brought tears [Accusative] to her eyes'; Neznanie privelo ego k oshibke 'Ignorance led him to error [to + Dative]'; Vashi slova vyveli ego iz terpeniia 'Your words led him to lose patience [from + Genitive]'; Eto dovelo delo do skandala 'This brought the matter to a scandal [to + Genitive]'; Tolchok privël koleso v dvizhenie 'The jolt sent the wheel in motion [in + Accusative]'; etc. The above examples are enough to show the great productivity and variety of this type of CC in the Russian language.

Footnotes

1. In this part of the research, various cases of ellipsis and implication (see e.g. 15) will not be examined. These are considered structural variants of initial causative verbs, which comprise the basic subject of the present preliminary study.

2. The term konstruktsiia is understood here in the broadest sense as any combination of grammatical forms directly connected to each other (not necessarily representing a full sentence).

3. In regard to the symbols, the first letters were selected from the Latin words res 'topic' and status 'state'. The symbol k used below replaces c (from Latin causa 'cause') in order to avoid confusion with a letter of the Russian alphabet.

4. See also U. R. Eshbi, Vvedenie v kibernetiku, Moscow, 1959, p. 44.

5. A componential analysis of causative verbs will be the subject of a special study being prepared by the authors.

6. Cf. Bally "... faire avoir 'cause to have' or faire être à 'cause to belong to' have been condensed to simple verbs that may be called causative links [copules causatives, tr.]. Just as one would expect, their lexicalization takes the most varied forms; ...faire avoir becomes pourvoir 'to provide', munir 'to furnish', etc., ...faire être à 'to cause to belong to' can become donner 'give', adresser 'apply', envoyer 'send', etc." (Ch. Bally, Obshchaia lingvistika i voprosy frantsuzskogo iazyka, tr. from French, Moscow, 1955, p. 125). [See also Linguistique Générale et Linguistique Française, Editions Francke Berne, 1965, p. 110, for original passage--tr.]

7. In regard to one-term links (i.e. those not having the terms s_i and s_j), such as zastavit' 'to cause', vynudit' 'to lead to', vyzvat' 'to compel', dat' (e.g. dat' ubezhat' 'to allow to run away'), etc., we naturally do not wish to say that there are no other semantic markers in their conceptual makeup besides k. However, for the time being, we are not concerned with other conceptual signs.

8. We note, in passing, that some languages have verbal causative links that cannot be one-term; in other words, the term k can have only an affixal, not a root, expression. Thus, for example, Nivkh has no verbs with the meaning to cause (and also to order and to allow), and it expresses these meanings with a special causative suffix: for example, ro-d' 'to help'--ro-gu-d' 'to order, to allow to help'. For the translation of one-term verbs of the type 'to cause' in such languages, one may use some kind of regular causative verb (often derived), which is close in meaning to the word being

translated; for example, in Chukcha, the causative verb rə-tegjen-ew-ək 'to cause' (lit. 'to cause (=rə ...-ew-) to want') is a derivative of the verb tegjeŋ-ək 'to want'.

9. In those cases where a CV expresses k only in specific constructions (in particular, with direct and prepositional objects), the instrumental noncausative correlate of the CV is the use of the CV outside this construction (i.e. without the direct or prepositional object); e.g. They (r_i) talked (s_ik) him (r_j) into doing (s_j) something (i.e. in talking they caused him to do something) and They (r_i) talked (s_i).

10. In particular, many Chinese so-called resultative verbs have dual noncausative correlates of this type; e.g. 1) ts'a kan (s_iks_j) 'to wipe (dry)', i.e. in the course of wiping (s_i) to make (k) dry (s_j), and ts'a (s_i) 'to wipe', kan (s_j) 'dry'; 2) ts'a kanc'hing (s_iks_j) 'to wipe (clean)' and ts'a (s_i) 'to wipe', kanc'hing (s_j) 'clean' (see S. E. IAkhontov, Kategoriia glagola v kitaĭskom ĭazyke, Leningrad, 1957, pp. 83-91). Cf. also German verbs of the type totfahren (s_iks_j) 'to run over' (e.g. with a tram car)--fahren (s_i) 'to go', tot (s_j) 'dead'.

In decomposed [privedënnykh] verbs, the omission of the element denoting s_j has led simultaneously to the loss of the k term, i.e. to the liquidation of the CV. As is seen from the examples, the latter may not even take place. Cf., for example, in Dakota: 1) na-ksa (s_iks_j) 'to break something by striking with the foot' and ksa (ks_j) 'to strike'; 2) na-ćeya (s_iks_j) 'cause to yell by striking with the foot' and ćeya 'to yell' (s_j); the prefix na-denotes action connected with the foot. (see S. Riggs, Dakota Grammar. Texts and Ethnography, Washington, 1893, p. 20).

11. The symbols being used here and below (a, s, x, n) are introduced below in the table of structural types of CC.

12. For the four semantic types of CV represented by symbols here, see 6.

13. Moreover, this schema will help the reader to become oriented in the translation of several examples of CC based on morphologically derived CV (cited in the articles of this collective monograph) into Russian, which does not have a morphological causative (concerning morphological CV, see the next article ["Tipologiia morfologicheskogo i leksicheskogo kauzativov", tr.]).

14. Cf., for example, the corresponding German: Dieser Anzug liess seine Schultern breiter erscheinen; Das Photo liess ihn eleganter erscheinen; Seine schweren Stiefel liessen den Boden knarren, etc.

15. Cf., for example, the corresponding German: Ich bringe ihn schon zum Arbeiten; Sie liess die Milch überkochen; Er hat sich [bei einem guten Friseur] die Haare schneiden lassen; Ich habe mir [bei einem guten Schneider] einem Anzug machen lassen.

Why Sound Change is Gradual

Lawrence C. Schourup

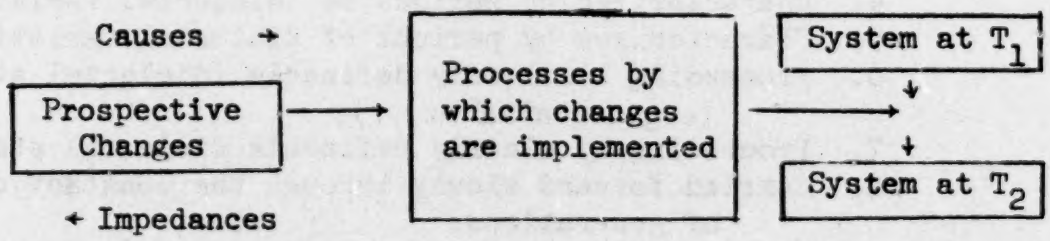
This is an attempt to determine the nature and causes of the gradualness of sound change by focusing attention on aspects of some causes and mechanisms of phonetic change.

1. A Note on Idiolects

It is not very interesting to say that a sound change has affected the idiolect of a speaker if his successive utterances of a given form are objectively different. Pronunciations which the speaker or even a phonetician may judge to be the same are never characterized by precisely identical acoustic signals or articulations. To define when an idiolectal sound change has occurred, it is therefore necessary to find a way to delimit "change" so that the term refers exclusively to variations which are in some sense directional. We can appeal to consistency and consider an idiolectal sound change to have occurred when a speaker's utterances of specific linguistic elements are consistently different, with respect to any feature of pronunciation, from utterances of the same elements spoken previously, but "consistency" clearly implies that sound change involves absolute progression, while evidence to be considered later suggests rather that there are periods of variation during which sound changes are inconsistently effected in idiolects. "Consistency" might therefore have to be replaced by a term that subsumes tendencies as well as absolute progressions. Changes in either the tendency or absolute consistency of production are the observable results of changes in neural linguistic programming.

2. Sound Change

Sound change seems to involve a multilateral interaction of causal and impeding factors.



As causal factors we may list:

1. Adoption of a new linguistic reference group;
2. The tendency toward easier articulation;
3. The tendency toward intelligibility;[1]
4. The tendency toward articulatory-perceptual stability;[2]
5. Restructuring by children;
6. Analogy to existing structures in the language;
7. Linguistic interference.

As impedances:

1-7 above;
8. Inertial effects ("force of habit");
9. Influence of competing changes.

Adoption of a new reference group can be a cause or an impedance, depending on whether or not a prospective change would render the speaker's idiolect more like the new reference dialect; similarly, the tendency toward ease of articulation is a cause or an impedance, depending on whether a prospective change would increase or decrease ease of articulation; etc.... It is not contradictory to list many of the same factors in both categories, but the fact that we must do so suggests that we have only listed cover terms for sets of richly diverse sub-factors whose complex local interaction is responsible for the favoring of particular changes. Notice also that if there are both causal and impeding factors, it is unnecessary to limit the class of "prospective changes;"[3] all conceivable changes are prospective, although all but a few are too heavily impeded to occur.

3. "Gradual"

Let us begin by considering the implications for gradualness of one of the ranges of causal forces mentioned in (2). But it will first be helpful to list here separately several possible meanings of "gradual" which can be applied to phonetic change, since these meanings are often consolidated in the literature without an accompanying explanation:

1. Proceeding by "imperceptible" gradations;
2. Arising gradually (over time) in the community;
3. Proceeding by lexical diffusion;
4. Characterized by periods of idiolectal variation;
5. Characterized by periods of dialectal variation;
6. Proceeding by clearly definable idiolectal stages (e.g., a>a$^{>}$>a$^{<}$>a...);
7. Proceeding by clearly definable dialectal stages;
8. Carried forward slowly through the constant onset of generations;
9. Not involving strictly binary values (cf. metathesis).

4. Social Factors

William Labov (1963, 1965) has experimentally studied thirteen on-going sound changes on the island of Martha's Vineyard and in New York City. He found a striking correlation between the advancement of particular sound changes and the incidence of certain social values. On Martha's Vineyard the increasing degree of centralization of the first member of /ay/ and /aw/ diphthongs proved to be closely associated with "positive orientation towards Martha's Vineyard."

According to Labov (1965), sound changes arise in one or two members of a subgroup of the speech community and are first generalized to all members of the subgroup. The point that will interest us here is that after a linguistic variable has become a "marker" of the subgroup, other groups which are in linguistic contact with the original group may adopt the change when they adopt the predominant social values of that group. On intuitive grounds alone we can predict that adoption of the original change by external groups is in some sense gradual because general changes in social value systems do not occur very rapidly at the community level. But to justify the premise that adaptive sound changes associated with changing social values occur gradually (sense 2), we must first show that there are not community-wide thresholds of social identification beyond which rather abrupt changes in community speaking habits occur. To do this, we could show that individuals tend to function independently in speech communities with regard to their adoption of speaking habits of external reference groups. As preliminary evidence for this claim, consider the case of speaker E. (Labov 1963, 300), whose mother remarked, "You know, E. didn't always speak that way... it's only since he came back from college. I guess he wanted to be more like the men on the docks..." For further evidence that idiolects adjust independently, we can turn to Labov's remark that "a marked contrast was observed between those who plan to leave the island and those who do not. The latter show strong centralization, while the former show little, if any" (see Labov (1963, 300) for the centralization values that justify this statement). If, as this evidence indicates, idiolects adjust independently to outside reference groups, there can be no rationale for community-wide thresholds of social identification in sound change, but it doesn't necessarily follow from this that such thresholds do not characterize the adjustment of individual speakers. However, it is very difficult to maintain that there are individual thresholds in light of Labov's evidence that the degree of centralization is proportional to the degree of positive orientation toward Martha's Vineyard (1963, 306). This strongly suggests that adaptive changes progress in individuals--and also therefore in the speech community--hand in hand with gradual value changes.

I. Adaptive sound changes which accompany changing social values occur gradually (sense 2).

5. Age-Grading

Labov (1965) observed that when social pressures remain constant, a linguistic variable which has become generalized to the initial subgroup or adopted by another group progresses within the group as a function of age and group membership. This observation has an interesting implication for the present question, for regardless of how we account for it, the existence of progressive age-grading seems to speak for the gradual (sense 2) advancement of those sound changes which can be gradual (sense 1; cf. metathesis). But King points out that:

> ...the age gradient showing that amount of centralization varies inversely with age...does not constitute evidence for a gradual shift in the 'habit of articulating' /ay/ and /aw/ through generations. What it does demonstrate is that most older speakers do not centralize at all when producing most instances of /ay/ and /aw/, whereas younger speakers do.
>
> (King 1969, p. 118)

Although it is of course strictly true that the existence of age-grading alone cannot be taken as evidence for a gradual shift, it is important to notice that if there is in fact no gradual shift associated with age-grading, the only way to account for age-grading is to suppose that as young speakers get older, their speaking habits become more like those of their elders; that is, King's distrust of age-grading as a criterion for gradual change is only warranted if it can be shown that there is a tendency for young people to centralize more and for old people to centralize less. This follows because, ceteris paribus, if there is no change on the part of the younger people to a habit of less centralization, their centralization will cause a sound change, since younger people eventually replace their elders in the speech community. There is no clear evidence for changes that are purely a function of age. In fact, Weinreich, Labov and Herzog (1968) remark that "all the empirical evidence to date indicates that children...preserve the dialect characteristics...of the peer group which dominates their preadolescent years."

II. Age-grading constitutes evidence for gradual change (senses 2 and 8).

6. Ease of Articulation

An interesting point arises in connection with the tendency toward ease of articulation. It is not true that all changes which make articulation easier--nor indeed that all those which do not--are capable of abrupt implementation. The deletion of final consonants ought to increase considerably the ease of articulation of English words, but if a speaker attempts to implement this change,

he fails as soon as he begins to speak at his normal rate. In fact, the only way to drop final consonants consistently is to speak so slowly that each word can be rehearsed silently before it is spoken. Even then, unusual amounts of attention must be devoted to the change being made. Even if a sound change affects only a single word, it generally[4] happens that speakers cannot substitute the changed form for the unchanged one, except with an intervening period of inconsistency.

But here it is essential to draw a distinction between new consistencies of articulation which can be brought about by simply changing the basis of articulation, and those which require in-speech spot adjustments. Basis changes primarily involve tract settings. The fact that many people find it easy to imitate foreign accents can be attributed to their swift learning of a few invariant basis rules of the languages in question. Basis changes can be effected quite abruptly at the utterance level because they require only a single pre-utterance decision on the part of the speaker. The difficulty with in-speech spot adjustments can be attributed to what was called earlier "inertia." More concretely, we can say that frequent repetition of articulations of segments and segment sequences leads to the formation of linguistic habits which must be broken just like any other habits, with resulting periods of idiolectal fluctuation while these habits are being changed. Of course, force of habit must also have a retarding effect on basis-type changes, but in this case the resulting fluctuation is most likely to be at the utterance, rather than the word, level.

III. It is possible for basis-type changes to be enacted abruptly at the utterance level, provided the speaker knows how the necessary adjustments are to be made and wishes to make them; but changes involving in-speech spot adjustments cannot in general be consistently enacted at will in speech at normal speeds and are therefore gradual (senses 2 and 4).

7. Restructuring by Children

If changes were carried out exclusively by the imperfect learning of language by children (in which case the assumption would have to be that this learning is systematically imperfect), changes would advance through the replacement of adult speakers by their progeny.

IV. To whatever extent sound changes are the product of imperfect learning, they are gradual (senses 2 and 8).

8. Lexical Diffusion

Lexical diffusion is not a cause of sound change but, putatively,

a process by which changes are implemented. William S-Y. Wang (1969) summarizes his lexical diffusion hypothesis as follows: "phonological change may be implemented in a manner that is phonetically abrupt but lexically gradual." Although Wang tentatively extrapolates his findings to all kinds of sound change, the safe version just quoted (with "may") is primarily intended to characterize changes which could not progress incrementally (e.g., metathesis). This kind of change is thought to originate at one place in an individual's lexicon and spread conditionally across the lexicon through time ("gradual," senses 2 and 4), where "change" here means a class of similar changes affecting the pronunciation of one or more classes of words. At the level of single words sound change is thought to occur when a new pronunciation enters into competition with an old one and eventually becomes predominant in the language. As evidence for lexical diffusion, Wang points to the existence in all languages of large numbers of morphemes with dual pronunciations.

It seems reasonable to view this competition between two or more forms which are not incrementally derivable from one another as a special case of the idolectal variation observed by Labov to be characteristic of changes which <u>are</u> derivable by incrementation.

V. Sound changes characterized by lexical diffusion are gradual (senses 3, 4 and 5).

9. <u>Functionalism</u>

A second account of the way in which sound changes proceed is offered by Martinet. Involved in his "functional" view of sound change is the assumption that, subject to systemic pressures, articulatory targets shift slowly, with the result that individual segment productions cluster about the slowly moving norm. This view entails the assertion that sound changes which <u>can</u> be gradual, <u>are</u> gradual (senses 1 and 2). But the only kind of evidence that could reinforce this aspect of Martinet's claim is lacking, namely evidence that targets shift slowly. Moreover, Labov's studies reveal extensive fluctuation in individual speakers' pronunciations of forms containing a linguistic variable, even when the same form is repeated with only a short interval between productions (Labov 1963, 287-89). For example, productions of single words containing /ay/ typically fluctuated between [aˇi], [aˆi], and [eˇi] in the speech of many speakers. King (p. 118) denies that such variations are of sufficient magnitude to indicate anything but fluctuations in performance, but his claim is not substantiated. In fact, it is difficult to see what kind of evidence could be used to justify this claim; and there are some arguments against the performance error hypothesis. The fluctuations observed on Martha's Vineyard are not completely arbitrary; speakers limit fluctuations so as to produce variations along some parameters, but not others. Finally, the performance error hypothesis is not consistent with the observation that some word classes exhibit no centralization at all (1963, 289); we would expect to find performance errors in all words containing /ay/ and /aw/.

VI. Evidence from Labov's studies on Martha's Vineyard suggests that some sound changes are gradual (sense 4) because they are characterized by periods of idiolectal variation.

10. Two Kinds of Change

Sturtevant (1917) and many others have pointed out that there are some changes for which it is inconceivable that they progressed by incremental stages. Processes in this category are those involving a change in the order of segments, probably also those involving a change of articulators, some dissimilations, losses, additions, etc. The word "abrupt" (King and Wang) or "sudden" (Sturtevant) is used to refer to this kind of change; changes not characterized by binary distinctions are considered potentially gradual (sense 9). Labov's observation of intermediate centralization values seems to indicate that the distinction is a viable one, but the existence of extensive idiolectal fluctuation suggests that idiolectal gradualness is more interestingly viewed as a consequence of this fluctuation in itself than as a phenomenon associated with progressive intermediate stages.

11. Staging

The question of staging (see senses 6 and 7 of "gradual") is of little interest in the present context. Talk of stages usually presupposes that the endpoints of a change are known, but the grounds for saying that one change has occurred and not two or three are never very clear. To the extent that dialectal stages exist, they might as well be viewed as separate changes. Idiolectal stages, if they exist, either must be identified with individual instances of articulation, in which case the notion of a stage becomes trivial, or, if individuals do in fact demonstrate distinct levels of consistency, would become meaningless in the context of community normalization; on the other hand, if all idiolects manifested identical stages at the same time, separate dialectal changes could again be postulated.

12. Summary

At the community level sound change is gradual. We may attribute this fact variously and in different degrees to the necessity for community normalization of individual variations, to the close relation between sound change and the gradual adoption of external values by communities of speakers, to age-grading which appears to be partly a function of pre-adolescent peer group identification, to systematic or normalized restructuring by children, to the lexical diffusion process, and to psychophysical properties of the organism which make it generally impossible for changes to be implemented abruptly.

Idiolectal gradualness, on the other hand, is probably best associated with periods of fluctuation between different levels of consistency or tendency of production.

Footnotes

1. To say that intelligibility is a cause of sound change does not necessarily entail the prior assumption that speakers have registered that their own or someone else's speech is to some extent unintelligible. Speakers might favor a change without being aware of the reasons for their preference. The commonplace observation that people are not aware of changes in their speech has led to the belief that changes are "imperceptible"; but to say that speakers are in all senses unaware of sound changes is to attribute to linguistic systems a mystical mobility of their own. To the epithet "imperceptible" we must probably add "on reflection."

2. See K. N. Stevens "The quantal nature of speech" in Human Communication, A Unified View by Stevens, Denes and David. The speech parameters are not as continuous as they are said to be in many phonetics handbooks; the commonest places of articulation appear to be at those points where articulatory perturbations produce the most minimal variations in acoustic output.

3. "Prospective" and "possible" are not to be confused. The set of possible changes is the set of changes which actually occur--a subset of all prospective changes.

4. This will depend in part on the frequency of the word in question, of course. It would be fairly easy for most speakers to change their pronunciation of Pulitzer consistently from [pʊlɪtsɚ] to [pyulɪtsɚ], or vice versa, but very difficult to change and from [ænd] to [ʌnd].

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SOME CONTEXT-FREE PROCESSES AFFECTING VOWELS

Patricia Miller

CHAPTER I

INTRODUCTION

When Roman Jakobson proposed, in Child Language, Aphasia, and Phonological Universals, his universal laws of implication, which predict the presence of a more expected segment in a language which admits the corresponding but less expected (i.e. more marked) segment, he gave an explicit form to the notion that certain phonological inventories or systems are more natural than others. The idea of the naturalness of a phonological system has continued to motivate students of language, and in The Sound Pattern of English, Chomsky and Halle have proposed a set of "markedness conventions" to characterize the degree of naturalness of phonological systems.

Both the implicational hierarchies and the markedness conventions, however, are metalinguistic frameworks--they impose abstract constraints on phonological systems from outside. A desire to derive the constraints from within the phonological systems themselves has led David Stampe to propose, instead, "an innate system of phonological processes which resemble the implicational laws and markedness conventions in content but have the same ontological status as the natural processes (so-called "rules") of the phonological system of any individual language" (Stampe, "On Chapter Nine," forthcoming).

There are several things that make such processes attractive. They can account for the implicational hierarchies suggested by Jakobson, and they can measure the complexity of systems, much as the markedness conventions do. However, processes can also predict the substitutions made by children and by other speakers borrowing from one system into another.

According to Stampe's view, a process affects a class of segments which share a feature that is inaccessible to the inborn capacity for speech. For these segments, the speaker substitutes segments from another class identical to the first except that the inaccessible feature is eliminated. In general, then, segments with fewer inaccessible features are substituted for those with more--in regular fashion. Thus, the first segments acquired by children will be those with fewest "unusual" or inaccessible features. In order for any but the simplest segments to be acquired, the speaker must suppress or limit the processes which simplify the more complex segments. In view of this, the phonological inventory of a language may be described in terms of the suppressions that the language requires of its

speakers.[1] For instance, if a language admits a y vowel, it has

[1]However, more than one set of suppressions may produce the same vowel inventory, so that only the actual substitutions will reveal the entire pattern of suppression. I will comment on this again later.

suppressed the natural process which unrounds palatal vowels--i.e., which substitutes i for y.

The basic hypothesis of natural phonology, then, is that the restrictions on inventories of underlying phonological segments--in this case, on vowel systems--are due to processes, rather than abstract hierarchies or morpheme structure constraints. If such processes exist, they ought to be discoverable in two ways: one might look at the substitutions (in child language, historical change, synchronic alternation, or loan phonology) which manifest such processes, and then apply the processes discovered to the limitations on systems; or one could hypothesize the processes on the basis of the existent systems and then look for the substitutions. In practice, it is generally necessary to use both methods almost simultaneously, but if I have favored one, it is that of looking first at the systems.

In this paper, I will first describe the processes with which I am going to deal; then I will survey the possible systems which alternative suppressions of the processes will generate; and after that, I will examine a variety of child substitutions and historical changes which the processes describe.

I will base my comments regarding systems on my observation of a number of vowel systems (over two hundred) collected from various sources--notably, from Trubetzkoy's Principles of Phonology, from Hockett's Manual of Phonology, and from studies in the International Journal of American Linguistics.[2] The processes I suggest are based

[2]For the majority of these IJAL systems, I'd like to thank Leslie Koster, who surveyed far more volumes than I did.

on these systems and on substitutions--child substitutions from Jakobson, Velten and Leopold, and historical changes from assorted sources (some of them oral).

There are certain arbitrary limitations on the scope of this paper. First, I have limited my study to monophthongs. Second, I have confined my observations to the processes which determine the "space" features--the quality features--of vowels. Thus, there is relatively little attention paid to stress, tenseness, nasality, tone, etc.

This paper is essentially an attempt to provide a first approximation to the form the natural processes take. It is intended to explore the feasibility of the basic idea of natural phonology and to discover the problems that confront any attempt to refine the theory.

CHAPTER II

THE PROCESSES PROPOSED

A. The Nature of the Processes.

The processes are assumed to be innate, or intrinsic, and their function is the simplification of the system: the more completely the processes apply, the simpler the vowel system they generate will be. Since the natural state of the processes is application, a cost in terms of learner-effort is attached to the suppression or limitation of any process.[3] The complete application of all processes

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[3]The term "limitation" refers to the suppression of a subpart of a process--a decrease in the generality of its application. For instance, if the process (i) is limited to application to non-high vowels (ii), then a subpart of the process (i.e. (iii)) is suppressed as a result of the efforts of the speaker.

$$\text{(i)}\quad \begin{matrix} V \\ +\text{Pal} \end{matrix} \rightarrow -\text{Rnd}$$

$$\text{(ii)}\quad \begin{matrix} V \\ +\text{Pal} \\ -\text{High} \end{matrix} \rightarrow -\text{Rnd}$$

$$\text{(iii)}\quad * \begin{matrix} V \\ +\text{Pal} \\ +\text{High} \end{matrix} \rightarrow -\text{Rnd}$$

Limitations of processes--or suppressions of subprocesses--will be illustrated in the generation of vowel systems (in Chapter III).

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results in the single, maximally vocalic vowel, a. This is the simplest possible system.

The input to the processes is the range of possible vowels (assuming that there is a limit set on this range by a kind of threshold of perceptual and/or articulatory distinctiveness), and the rules serve to restrict and structure this range--i.e., to produce a vowel system.

This restriction by innate processes produces certain implicational effects, like the implicational hierarchies suggested by Jakobson. Like these hierarchies, the processes can be discovered not only through surveying existent synchronic vowel systems, but also by studying child substitutions.

In the child learning language, all the processes apply,

merging all vowels to a. Acquiring an opposition involves the suppression or limitation of one of the processes. The more of these natural processes the child learns to suppress, the more complex his vowel system becomes, until he finally has made enough suppressions to allow him the full set of oppositions present in his parents' language.

These processes do not appear in child language alone, however. They can also been seen at work in historical language change. If a generation or group of speakers, for example, fails for some reason to suppress a process that is suppressed in the language of their parents or "parent language community," then the language of this group will lack one of the oppositions that the parent language had. If, on the other hand, the younger generation should suppress or limit a process that was operative in the conservative form of the language, the new form will have an additional opposition.

Synchronically, too, the processes are observable in the morpheme structure rules, which limit, through substitutions, the forms available to a language. Loan phonology, the study of such substitutions, may reveal the processes operating in a language by noting the substitutions made when the language borrows from a language with a more complex system.

B. The Features Used Here.

Because the set of processes I am about to describe is meant to be suggestive rather than definitive, and because of the difficulty (cf. Ladefoged 1967, 67-72) of dealing with four-height vowel systems in terms of binary features, I have used features that will account for systems with a maximum of three heights. The tense-lax distinction will account for some apparently four- or five-height systems, however, and the rules are easily adaptable to other height descriptions.

I have used a similar strategy regarding timbre, which will become clearer with a description of the features I am using.

The set of features used is small and fairly simple, but some explanations might be useful:

+Palatal (+Pal) applies to those vowels in which the tongue is thrust forward and/or somewhat upward (with reference to the mandible or lower jaw) toward the hard palate. It refers, in fact, to those vowels traditionally called "Front".

+Round (+Rnd) applies to those vowels for which the lips are rounded.

+Low applies to those vowels for which the jaw opening is larger and/or the tongue is somewhat lower than in the speech-ready position (cf. Chomsky and Halle, 1968).

+High applies to vowels for which the jaw opening is small and the tongue is raised from the speech-ready position.

In the processes as I have written them, I have had occasion to refer to degrees of a feature. For example, "higher", in a

structural change, is used to refer to the addition of one degree of height to any vowel specified by the structural description. "!lower" in a structural description, on the other hand, refers to the increasing likelihood of application of a process as the vowel the process affects is less and less high. The use of this "degree-feature" notation has an important use: it indicates that the process is asymmetrical in that it can be limited in one direction (e.g., for "!lower", to -High or +Low vowels) but not in the other (e.g., not to +High vowels).

Since there do not seem to be any languages with more than four systematic or distinctive timbre classes, I refer to central vowels simply as non-palatal. There do not seem to be any distinctions within languages between central rounded and back rounded vowels, or between central unrounded and back unrounded vowels.

The maximal system under these features, then, would be:

	+Pal		-Pal	
+High	y	i	ɨ	u
-High, -Low	ø	e	ʌ	o
+Low	œ	æ	a	ɔ
	+Rnd	-Rnd		+Rnd

In this set of features, there will be three that are considered primary: ±Palatal, ±Round, and ±Low, and each of these may be considered the principal characteristic of one of the three primary vowels: i, u, and a. This implies a certain primacy of ±Low over ±High. This will be attributed to the fact that +Low denotes maximal openness, and openness is the defining quality of vowels; +Low, then, is maximally vocalic, and ±High may be considered a feature which deals only with less-than-maximal vocalism. This priority of ±Low can affect the formulation of a rule by occasionally determining whether +Low or -High will be specified.

I have also used two less usual features to suit my purposes. These features have an essentially abbreviatory function, and they require explanation.

±Color is a cover term which includes ±Palatal and ±Round. It is intended to express a privative opposition between vowels which are either palatal or round or both and vowels which are neither palatal nor round. The use of this feature will be justified by the presence of some processes that affect vowels that are +Color but not those that are -Color, and other processes that affect -Color but not +Color vowels.

The term is only intended for rule-writing and expository purposes, however. No language seems to have a distinction of color without specification as to whether

the +Color items are +Palatal or +Round. It is not, then, to be considered a particular timbre, or another name for timbre, but a division within the set of timbre classes.

Neutral here refers to a vowel which is negatively specified for all of the above features. Thus, the Neutral vowel is the -High, -Low, -Pal, -Rnd vowel, ʌ. However, as will be noted, a language may admit more than one neutral vowel, so "neutral" (small n) will denote the class of vowels which a language treats as neutral.

A ! notation is also used. It indicates that the most common, or least likely-to-be-suppressed form of the process is that which includes the !-marked condition, but that the process can, and in its original form does, apply more generally, without regard to the !-marked feature or condition. ! may be read "especially when...."

C. The Processes.

Based on these largely traditional feature descriptions, the following rules are suggested as describing the processes discovered. The rules will be loosely grouped and titled by function, and they are presented in unmarked order.

(1) Neutralization.

$$\begin{matrix} V \\ \text{!-Stress} \\ \text{!-Tense} \end{matrix} \rightarrow \text{Neutral}$$

This process, then, describes a certain tendency for vowels to be negatively marked with regard to the features used here.

The full form of this process applies only in child language, but a limited form of the rule continues to operate in many adult languages. This limited form,

$$\begin{matrix} V \\ \text{-Stress} \\ \text{-Tense} \end{matrix} \rightarrow \text{Neutral}$$

can be observed in the common phenomenon of vowel reduction.

Neutralization can be limited in a variety of ways. Evidence for this may be found in some of the different kinds of vowel reduction found in languages.

According to Bloomfield's description of Eastern Ojibwa (1956, 5-6), the structural change of the neutralization process is limited so that it lacks the -Round feature, since there are two reduced vowels, a schwa and an indistinct vowel, roughly ə or ɨ̞ʷ. The lax vowel system Bloomfield described is

i
o
a

and the neutralization process (i.e., the vowel reduction process) might, for this language, be written

$$\begin{matrix} V \\ -\text{Stress} \\ -\text{Tense} \end{matrix} \rightarrow \begin{matrix} -\text{Pal} \\ -\text{High} \\ -\text{Low} \end{matrix}$$

so that the reductions are:

$$\underline{\frac{i}{a}} \rightarrow \underline{\Lambda}, \text{ and } \underline{o} \rightarrow \underline{\upsilon}.$$

The front and back jers of Slavic (Shevelov, 432-433) represent a kind of reduction wherein -Palatal is the feature deleted from the structural change. Thus $\underline{i}$ reduces to a front jer (a +Pal, -High, -Low, -Rnd vowel), and $\underline{u}$ reduces to a back jer (a -Pal, -High, -Low, -Rnd vowel), by

$$\begin{matrix} V \\ -\text{Stress} \\ +\text{High} \\ -\text{Long} \end{matrix} \rightarrow \begin{matrix} -\text{High} \\ -\text{Low} \\ -\text{Rnd} \end{matrix} .$$

In English, neutralization applies to unstressed vowels, short or long. In certain contexts, however, (before high consonants) the structural change is limited so that the palatality specification is not changed--i.e.,

$$\begin{matrix} V \\ -\text{Stress} \end{matrix} \rightarrow \begin{matrix} -\text{Rnd} \\ -\text{Low} \end{matrix} .$$

Thus, the final syllable of "comic" [kamɪk] remains distinct from that of "havoc" [hævʌk]..

In languages with certain rare vowel systems, a limited form of neutralization may continue to affect stressed vowels even in the adult language. The systems which result seem to lack distinctions of timbre, though some admit distinctions of height; and they will be mentioned again in the section dealing with timbre.

Neutralization, it seems, is (almost) always the first process to be limited or suppressed by children, and it is almost universally limited to unstressed or non-tense vowels in adult language. In its most general form, then, neutralization is the weakest process.

(2) Neutral-vowel Lowering.

$$\begin{matrix} V \\ \text{Neutral} \\ ! +\text{Stress} \\ ! +\text{Tense} \end{matrix} \rightarrow +\text{Low}$$

Fed by the neutralization rule, this process lowers the neutral vowels $\underline{\varepsilon}$ and $\underline{\Lambda}$ to $\underline{æ}$ and $\underline{a}$, especially when these neutral

vowels become stressed or tensed. Processes (1) and (2), then, may be viewed as the source of the "universal a" which appears to be present in all child language--Hellwag's "prince of vowels" (Jakobson 1962, 32

The lowering process is parallel to the tendency toward maximal vocalism or sonority. This tendency, as noted by Jakobson (1968, 69 et passim) is extremely strong in child language, but correlates can also be found in adult substitutions (as in [bat] for English "but" by speakers whose native language includes no ʌ vowel), or in historical change.

In adult systems where neutralization has been limited or suppressed so that colored and high vowels may occur, such vowels do not undergo this lowering, but the process may continue to affect the neutral vowels.

Unless this process is limited or suppressed, the ʌ vowel does not appear in a language system. Since this vowel is neither rare nor universal, the process cannot be considered either extremely strong or extremely weak. Its operation appears to be independent of the operation of any other rule.

This rule may be related to Jakobson's principle of maximal distinction (Jakobson and Halle 1956, 37 et passim). The tendency for -Color vowels is to lower to a, and the raising of the +Color vowels then maximizes the articulatory and perceptual difference between these sets. Furthermore, higher vowels maximize the color features: i is fronter (more palatal) than e, and u rounder than o. This can be seen in their greater tendency to palatalize or round adjacent consonants.

The Color Rules

I have grouped these rules together because of their similar functions, and also because of their similar forms. They appear, however, to be descriptive of separate and largely independent processes.

(3)
$$V \;[+Pal] \rightarrow [-Rnd] \;/\; !lower$$

(4)
$$V \;[+Rnd] \rightarrow [-Pal] \;/\; !lower$$

(5)
$$V \;[-Pal] \;/\; !more\ back \rightarrow [+Rnd] \;/\; !-Low$$

(6)
$$V \;[-Rnd] \rightarrow [+Pal] \;/\; !lower \;/\; !-Low$$

The processes which determine vowel color conspire to provide that vowels with a single positive color marking are preferred over vowels with two positive color markings or two negative ones. In effect, i, e, u, and o are to be preferred over y, ø, ɨ, and ʌ.

Processes (5) and (6) rarely apply to low vowels; apparently the neutralization rules, which remove positive color-markings from low vowels, are far stronger than these rules, which provide a positive marking. Application of processes (3) and (4) to low vowels coincides with the operation of the unrounding and depalatalization rules.

With respect to possible systems, processes (3) and (4) are functionally equivalent: both eliminate y, ø, and œ. By the same token, (5) and (6) are equivalent in eliminating ɨ, ʌ and (rarely) a.

In each of the processes, one color specification is given, and the other results from the operation of the process. Operation of (3) and (5) as opposed to (4) and (6) implies that ±Palatal is the given--the dominant--feature; operation of (4) and (6) makes ±Round more basic. This may be a way of accounting for systems that are essentially ±Palatal or ±Round, as Trubetzkoy (1969, 100-101) characterized many of the two-timbre systems he described.

It is worth noting here, however, that (3) and (5) seem to operate in appreciably more cases than (4) and (6). Thus i and e are more likely substitutions for y and ø than are u and o; and u and o are more probable substitutions for ɨ and ʌ than are i and e.

The "!lower" and "!more back" labels are intended to indicate that the process so marked is increasingly likely to apply as the input vowel becomes less high or more retracted. The results of these varying scales of likelihood are that mid vowels (and sometimes low vowels) are more likely to be changed by these processes than are the corresponding high vowels.

There is an apparent problem here in that this might lead one to believe that the presence of ʌ in a system implies the presence of ɨ, in the same way that ø may be said to imply y. Yet systems with ʌ but no ɨ are quite common among the world's languages. It is possible, however, to limit the input of the neutralization process to vowels that are -Rnd, -Pal, and -Low, so that ɨ → ʌ. There is no parallel possibility involving y and ø.

The mutual independence of rules (3) and (6) will be seen later in this paper, in looking at the systems generated by suppression of one or more of these processes. Certain relationships among these processes do obtain, however. The pairs (3) and (4), and (5) and (6) are mutually bleeding; if the height specification is the same for both processes in a pair, operation of one of the processes allows the other to apply only vacuously. If the height specifications within a pair are different, unnatural results are noted. For example, if the input of (3) is limited to -High, œ → æ and ø → e. If, in the same system, (4) applies to all heights, y → u. The unlikelihood of such substitutions lends some credibility to Trubetzkoy's descriptions in terms of one color distinction or another; for our purposes, it requires the specification that (3) - (4) and (5) - (6) are unlikely combinations in an adult system.

There are also processes which have a neutralizing effect on low vowels. These may eradicate the effects on low vowels of rules such

as (5) and (6).

(7) Unrounding.

$$\overset{V}{+\text{Low}} \rightarrow -\text{Round}$$

(8) Depalatalization.

$$\overset{V}{+\text{Low}} \rightarrow -\text{Palatal}$$

The unrounding rule provides that œ → æ and ɔ → a, and the depalatalization rule, that œ → ɔ and æ → a. If both of these processes operate, the result is a single low vowel, a.

Although these rules look similar, and although they frequently both apply in a given language, the processes they represent appear to be independent of each other, in that the application of one does not imply the application of the other.

(9) The Raising Rule.

$$\begin{array}{l} \overset{V}{+\text{Color}} \\ -\text{High} \\ !+\text{Tense} \\ !+\text{Low} \end{array} \rightarrow \text{higher}$$

This rule, difficult to state in any conventional notation, describes the process by which colored non-high vowels add one degree of height: the mid vowels become high and the low vowels become mid. In its most general form, the process raises all Palatal and all Round vowels, but it may be limited to one series or the other, as, historically, in Sao Miguel Portuguese (King 1969a, 17), where only the round vowels were raised. It can also be limited to the intersection of these two sets, the +Round, +Palatal vowels, as in Middle Scots ø → y (Wright 1923, 28), or French œ → ø (Morin 1971, 104-105).

As indicated by the !+Low condition, the process is stronger for low vowels than for mid vowels. Thus, the process may have its input limited to low vowels only, but not to mid vowels only; that is, if the process is suppressed for +Low vowels, it will also be suppressed for -Low vowels. It follows that for any one timbre class, a low vowel in that class implies a mid vowel in that class.

This is not the case for -Color vowels, but the raising process does not seem to apply to such vowels, a fact which has been noted in discussions of vowel shifts.

The !+Tense feature reflects the fact that tenseness is favorable to vowel raising,[4] possibly because tenseness involves greater

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[4]It might be possible to state a distinct, but at least logically related process affecting lax vowels, such as

$$\begin{matrix} V \\ \text{-Tense} \end{matrix} \rightarrow \text{lower},$$

which would account for such occurrences as I → e, but the lack of such occurrences as ɛ → æ inclines me, instead, to account for such facts in terms of a limitation of the neutralization rule.

---

deviation from the neutral position. In English, for example, only stressed tense vowels underwent the Great Vowel Shift (Chomsky and Halle 1968, 256).

The following table summarizes the preceding sections by listing the processes:

TABLE I

SUMMARY OF THE PROCESSES

(1) Neutralizatio

$$\begin{matrix} V \\ \text{!-Stress} \\ \text{!-Tense} \end{matrix} \rightarrow \text{Neutral}$$

(2) Neutral-vowel Lowering

$$\begin{matrix} V \\ \text{Neutral} \\ \text{!+Stress} \\ \text{!+Tense} \end{matrix} \rightarrow \text{+Low}$$

(3) Palatal-vowel Unrounding

$$\begin{matrix} V \\ \text{+Pal} \\ \text{!lower} \end{matrix} \rightarrow \text{-Rnd}$$

(4) Round-vowel Depalatalization

$$\begin{matrix} V \\ \text{+Rnd} \\ \text{!lower} \end{matrix} \rightarrow \text{-Pal}$$

(5) Nonpalatal-vowel Rounding

$$\begin{matrix} V \\ \text{-Pal} \\ \text{!more back} \\ \text{!-Low} \end{matrix} \rightarrow \text{+Rnd}$$

(6) Nonround-vowel Palatalization

$$\begin{matrix} V \\ \text{-Rnd} \\ \text{!lower} \\ \text{!-Low} \end{matrix} \rightarrow \text{+Pal}$$

(7) Low-vowel Unrounding

$$\begin{matrix} V \\ \text{+Low} \end{matrix} \rightarrow \text{-Rnd}$$

(8) Low-vowel Depalatalization

$$\begin{matrix} V \\ \text{+Low} \end{matrix} \rightarrow \text{-Pal}$$

(9) Raising

$$\begin{matrix} V \\ \text{+Color} \\ \text{-High} \\ \text{!+Tense} \\ \text{!+Low} \end{matrix} \rightarrow \text{higher}$$

D. How the Processes Operate.

The generation of a few simple systems should be enough to show

how the processes operate. A tentative ordering, set up here by the criterion of maximal feeding (or, considering the nature of the processes, minimal bleeding) order, will follow the order in which the processes were just listed.

The most elementary situation--that of the child just beginning to talk--produces the one-vowel system consisting of the maximally open and sonorant a. Such a system requires operation of all of the natural processes.

If the neutralization rule is suppressed or is limited to unstressed vowels, a three-vowel system will result. Depalatalization and unrounding will change the low vowels to a, the raising rule will eliminate the mid vowels, and the color rules will leave only i and u in the high series. The resulting

i u
a

system is probably the simplest system found in adult languages. The neutralization rule is extremely weak with respect to stressed vowels; stressed vowels seem to neutralize only in child language, and there they are nearly always lowered to a precisely because they are stressed.

It should be noted here that, even with this solitary limitation of a rule, there is more than one way for the system to be generated. If raising occurred before depalatalization and unrounding, the +Low vowels might be raised to ø, e, and o, and, if rules may reapply, thence to y, i, and u. Low-vowel unrounding and depalatalization would reduce the vowel inventory to i, u, and a as above. While this account is perfectly credible as a set of historical processes, I am inclined to reject it as a synchronic description for two reasons. First, it seems unnecessary to assume that one of the processes applies twice and another applies vacuously. More important than this "economy-based" reason, however, is that such an analysis would require the prediction that any +Low, +Color vowel in a word borrowed into the system would become a +High vowel of the appropriate timbre class, rather than a. I have never seen any evidence of such occurrences as child substitutions of i for æ, or for adult borrowings of this nature.

Generation of the extremely common five-vowel triangular system

i u
e o
a

follows the same pattern as generation of

i u
a

but the five-vowel system requires an additional suppression: the raising rule is limited to +Low vowels. Thus e and o are no longer eliminated.

Here the possibility of more than one use of the processes to generate the system seems a bit more probable. Since the raising

rule must be limited to +Low vowels, the +Low, +Color vowels may either be raised to merge with the mid vowels, or unrounded and depalatalized to merge with a. In such a system, substitutions for æ and ɔ will be e and o if raising applies to them, or a (for both) if depalatalization and rounding apply. Unlike the i-for-æ and u-for-ɔ substitutions required by the generation rejected above, substitutions of this kind (e for æ and o for ɔ) are not unexpected.[5]

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[5]Mieko Ohso has pointed out to me that Japanese, which has a five-vowel system of this type, borrows æ and ɔ as a and o respectively. Thus æ apparently undergoes low-vowel depalatalization, but ɔ is raised rather than unrounded.

E. Complexity of Systems.

Some systems, of course, can be generated with fewer suppressions or limitations than others. The above are among the simplest and most common systems. (The a-only system is common only in child-language, of course.)

Simplicity will be measured here in terms of the freedom with which the processes are allowed to operate: the greater the number and scope of the limitations and suppressions, the more complex the system will be. Thus, simplicity is not always directly related to the number of vowels in the system. The

```
i
^
a
```

of certain Caucasian languages (Trubetzkoy 1969, 97-98), generated with limitation of the neutralization rule to

$$V \rightarrow \begin{matrix} -\text{Rnd} \\ -\text{Pal} \end{matrix}$$

and the suppression of lowering, raising, and the color rules (6) through (9) is far more complex than the

```
i   u
  a
```

system of Arabic and many other languages (Trubetzkoy 1969, 106), although both have the same number of vowels, since only neutralization need be suppressed to generate the latter system.

In order for the processes suggested here to be flexible enough to generate such systems as the rare

```
i
^
a
```

type, they must also be capable of generating, through further limitations, systems that look even more "unnatural." For example, if the neutralization rule can be limited to

$$V \rightarrow \begin{matrix} -\text{Pal} \\ -\text{Rnd} \end{matrix}$$

in producing the system above, there is at least no <u>logical</u> reason for it to be unable to be limited to

$$\begin{matrix} V \\ -\text{Pal} \end{matrix} \rightarrow -\text{Rnd}$$

which, with identical suppression of all the other processes, would generate the system

i y ɨ
e ø ʌ
a .

Obviously, an evaluation system is needed to measure the complexity of vowel inventories.

One possible way of measuring the complexity of the systems would be to count the features of the processes that are blocked out. Such feature-counting might require that there be a certain cost to the grammar for each addition to the structural description of a rule and a like cost for each deletion from the structural change. Deletion of the entire structural change, the most extreme form of such deletion, would be equivalent to suppression of the process.

Some form of feature-counting of this sort must be a part of the evaluation system, and yet if feature-counting is not supplemented by some weighting device, limitation of the neutralization process (which is universal in adult language) will be no more probable than, say, suppression of the low-vowel unrounding rule. Feature-counting alone does not take into account the relative strengths of rules.

Each feature added to the structural description or deleted from the structural change of a process could be counted, and the total number (of the changed features) could be multiplied by the assigned "weight" of the process. The results would then be totaled and the final figure would represent the complexity of the vowel system.

To reflect the likelihood of a rule's being limited to a !-marked value, removal of an ! could be assigned a cost one-half that of adding or deleting a feature.

In order to weight the processes, a scale of strength based statistically on frequency of application might be desirable, but it is hardly possible within the scope of this paper.

CHAPTER III

SOME EVIDENCE FOR THE PROCESSES

With a variety of suppressions or limitations, this relatively small set of processes may thus generate a large number of vowel systems, which should correspond to the vowel systems which actually do occur. Then, if the occurring systems are results of actual processes, one could expect to find independent evidence of these processes in the context-free processes affecting vowels in the developing phonological systems of children, and in the historical development of vowel systems.

A. Evidence from the limitations on systems.

First, the rules here are designed for generating a large proportion of the vowel systems of the world. They do so by producing the possible height and timbre combinations and distinctions.

1. Height

It seems that all--or almost all--languages have more than one vowel. Among the great proportion that must be viewed as having vowel distinctions, there do not seem to be any systems that lack a distinction of height. Languages may lack timbre distinctions entirely, but they do not seem to be able to do without height distinctions.

The above processes seem to reflect this. Only when the neutralization and lowering rules apply in their most complete form does a system lacking height distinctions result, and the neutralization rule is the weakest rule of all. As soon as this weakest process is limited, a height contrast is unavoidable.

2. Timbre

Distinctions of timbre, though apparently secondary to distinctions of height, are, of course, extremely common in languages. They are also, it seems, more complex; there are more variables associated with timbre.

The timbre distinctions used here, ±Palatal and ±Round, are simplifications in the same sense that all ±valued articulatory features are simplifications: they divide the "vowel space" into categories rather than treating it as a continuum. In general, the processes can be described in terms of these featural categories, but sub-featural variations can affect the strengths of various forms of the rule. In these cases, indicators such as "lower" have been included in the rules. This may not be a particularly attractive choice in terms of notation, but it seems that the various vowels should be able to be assigned relative degrees of these physical

qualities in fairly straightforward ways, and the terms allow for greater accuracy of description of the processes that do occur.

The principal use of these indicators occurs in the color rules, where the degree of lowness seems to affect the strength of the process. The meaning of the "!lower" indicator is fairly obvious: application of a process thus marked to +High vowels implies application to -High, -Low vowels, which in turn implies application to +Low vowels. Conversely, blocking the process for a lower vowel implies blocking it for any higher vowel, since the process is strongest for the lowest vowels and weaker for the higher ones.

The rules (7) and (8)--unrounding and depalatalization--and the !-Low markings on the color rules seem to conspire to eliminate low vowels other than a, and thus to produce a triangular system (i.e., one with no timbre distinctions in the low vowel series). In the systems generated so far, these processes were allowed to operate.

Obviously, not all systems are triangular; the suppression of (7) or (8), with the optional elimination of the !-Low marking of the appropriate color rule, can produce a quadrangular system.[6]

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[6]The distinction triangular vs. quadrangular, however, is not really a very interesting one, since it amounts to no more than any other expression of the tendency toward fewer timbre distinctions among the more open vowels. Such a distinction apparently has favored some rather inappropriate vowel arrangements (such as (i) for the system (ii) or (iii)).

(i)
i y u
e ø o
a

(ii)
y i u
ø e o
a

(iii)
i y u
e ø o
a

I am trying to avoid such arrangements here; this accounts for my less-than symmetrical arrangements of some perfectly "natural" systems.

In the suggested set of processes, the "!lower" indicators on the color rules (and the depalatalization and rounding rules for low vowels) reflect the fact that there may be more timbre distinctions in the higher vowel series than in the lower ones, but usually not more distinctions in the lower than in the higher series.

Probably the most logical way of dealing with the variety of timbre systems is to break down the possible systems in terms of the number of distinctions within the language or system.

a. Languages without distinctive timbre classes

In a few languages (which appear to be concentrated in the West Caucasus), the timbre qualities of the vowels appear to be phonologically conditioned, and only vowel height seems distinctive. In such languages, it appears that some form of the neutralization rule must continue to apply to stressed vowels in the adult language, as perhaps

$$V \rightarrow \begin{matrix} -Pal \\ -Rnd \end{matrix}$$

and neutral-vowel lowering and the context-free color processes must be suppressed. The retention of any form of the neutralization rule for stressed vowels is extremely unusual, and the combination of this retention and the suppressions noted above is even more unlikely. The

ɨ
ʌ
a

system of these languages is correspondingly rare.

b. Languages with two timbre classes

If there is a single timbre distinction in a language, it is often based on the overlap of the two colors. In such cases, the +Palatal vowels are -Round, and the -Palatal vowels are +Round. This is the case with the familiar

i u
e o
a

system of such languages as Spanish (Hockett 1955, 85), Fijian (Hockett 1955, 86), and Lake Miwok (Broadbent and Callaghan 1960, 301).

Other languages, however, give reason to believe that either ±Palatal or ±Round is the essential distinction of timbre, with the other distinction having secondary status, so that this other feature-value may be changed by various context-sensitive rules. Trubetzkoy (1969, 99 et passim) suggests that certain Montenegran dialects have an essentially ±Palatal timbre division, and that Russian has an essentially ±Round distinction.

Such possibilities may be described within the set of processes suggested by the choice of the color rules used to generate the system. A system with a basically ±Palatal distinction would be generated by the processes

$$\begin{matrix} V \\ +Pal \\ !Lower \end{matrix} \rightarrow -Rnd \qquad \text{and} \qquad \begin{matrix} V \\ -Pal \\ !lower \\ !-Low \end{matrix} \rightarrow +Rnd$$

while a basically ±Round system would be set up by the processes

$$\begin{matrix} V \\ +Rnd \\ !Lower \end{matrix} \rightarrow -Pal \quad \text{and} \quad \begin{matrix} V \\ -Rnd \\ !lower \\ !-Low \end{matrix} \rightarrow +Pal$$

c. Languages with more than two timbre classes

In systems with more than two timbre classes, the question of whether only one color feature is distinctive does not arise; obviously, both features are distinctive. These systems involve the suppression of one or more of the color processes.

By various suppressions and limitations, the set of processes proposed here does seem to be able to generate the occurrent three- and four-timbre systems.

(1) Systems with three classes.

(a)	+Pal	-Pal	-Pal
	-Rnd	-Rnd	+Rnd

A vowel system that includes these three classes might be one like that found in Bororo (Huestis 1963, 231) and Maidu (Hockett 1955, 84):

i	ɨ	u
e	ʌ	o
	a	

Here the neutralization, lowering, and raising processes are suppressed, but depalatalization and unrounding affect the low vowels. Characteristic of this set of timbre classes is the suppression of all the color processes except

$$\begin{matrix} V \\ +Pal \\ !lower \end{matrix} \rightarrow -Rnd$$

If raising and lowering are allowed to operate, the simpler, two-height system of Amahuaca (Hockett 1955, 84) results:

i	ɨ	u
	a	

If, instead, depalatalization and unrounding are also suppressed, the system

i	ɨ	u
e	ʌ	o
æ	a	ɔ

is generated. This system, according to Hockett (1955, 87) is the system of Trukese and Thai.

A "hollow" system, the

i ɨ u
e o
a

of languages like Tübutulabal (Trubetzkoy 1969, 112) and Choco (Loewen 1963, 358) may also be achieved.[7] Neutralization and

---

[7]Hockett (1955, 87) lists Bulgarian among the languages with this vowel system, but Trubetzkoy's (1969, 114) more complete description indicates that Hockett may simply have classed as an ɨ what is really an ʌ.

---

raising are suppressed (or raising is limited to +Low vowels), but lowering operates, eliminating the ʌ. The only unsuppressed color rule is still

V
+Pal → -Rnd
!lower

Alternatively, this system could be achieved by allowing the -Low, -High, -Pal vowels to be rounded by (5) (i.e., by limiting (5) instead of suppressing it).

(b) +Pal +Pal -Pal
-Rnd +Rnd +Rnd

If the color processes are limited differently, it is possible to generate systems with this different set of three timbres. An example of this kind of system is the

i y u
e ø o
a

of German (Hockett 1955, 87), of some French dialects (ibid.), and of certain dialects of Tibetan (C. and F. Voegelin 1965, 32). The characteristic difference between this system and systems of the Bororo type can be attributed to a different limitation of the color rules: instead of allowing

V
+Pal → -Rnd
!lower

to operate and suppressing the other , these systems require that all the color rules except

```
 V
-Pal   → +Rnd
!lower
!-Low
```

be suppressed.

Additional systems may be generated by varying the limitations and suppressions of the other processes. The

```
i  y    u
e       o
     a
```

of Middle Greek (Trubetzkoy 1969, 112) and Taki-Taki (Hockett 1955, 87) differs from the above system in that raising is limited to the +Pal, +Rnd vowels, at least in the non-low degrees of height.

The Middle High German long vowels (Wright 1955, 4-5),

```
i  y    u
e  ø    o
æ     a
```

form a similar system, except that the low-vowel depalatalization process is suppressed. (Also, it seems that raising does not operate here, unless it is limited to +Rnd vowels; I am more inclined to think that it is suppressed.)

(2) Systems with four classes.

Suppression of all of the color processes results in a four-timbre system; this is the maximal set of distinctions. Turkish, with its

```
i  y  ɨ  u
e  ø     o
      a
```

system (Trubetzkoy 1969, 107) is probably the best-known example. Here neutralization is suppressed, and raising is at least limited to +Low vowels.

The color rules need not be entirely suppressed to produce a four-timbre system. In some cases, there are four timbres in the +High series only. (Eastern Cheremis (Trubetzkoy 1969, 104) is an example.) In such cases, the color rules may be limited to application to -High vowels and thus eliminate the non-high vowels of some timbres by changing a roundness or palatality marking, or the raising rule applies to certain timbre classes only, merging the non-high vowel with the high vowel of the same timbre.

From these examples, it is easy to see that a large proportion of the world's vowel systems can be accounted for by the processes suggested. Some systems, especially a number of those found in

American Indian languages, remain, but the processes work in most situations, and they strongly favor the same vowels favored by Jakobson's implicational laws and Chomsky and Halle's marking conventions. In order to produce a less-favored vowel, more processes have to be suppressed, and the less-favored vowel occurs only in opposition to a more-favored one.

B. Evidence from substitutions.

In order to see the processes in action, however, it is necessary to look at them through the more dynamic aspects of language study--through language acquisition and language change.

1. Child language.

It is in language acquisition, perhaps, that the operation of the processes is most obvious. The child acquiring language has a vowel system, however rudimentary, into which he must fit any word he chooses to say. If the adult form of the word contains a vowel not included in his system, the vowel form must be changed into one that he can use, and it is so changed by means of these innate or intrinsic natural processes. Thus, when the child has not suppressed any of the processes, all of his vowels are ordinarily pronounced as a no matter what the vowel is in the original word. (The phonetic environment may alter the quality of the vowel to a certain extent, but there is no distinctiveness to separate two vocalic segments in the system.)

Even when he has begun to limit at least one process and can therefore maintain a distinction, the child's system is still smaller (and simpler) than the adult's; when he uses a word containing a vowel he does not have, he must still make substitutions, and his substitutions are still governed by the processes that remain active.

a. Jakobson's predictions.

To a great degree, this progressive limitation can parallel the order of acquisition of distinctions predicted by Jakobson in Child Language, Aphasia and Phonological Universals and by Jakobson and Halle in Fundamentals of Language. According to Jakobson, the first vowel is the maximally open and therefore maximally vocalic a. The first vowel distinction acquired is one of height--the one distinction that seems to be universally present in vowel systems. The next distinction acquired is usually that of "palatal vs. velar" in the high vowels, generally expressed as i and u, in accordance with the principle of maximal distinctiveness.

This third system, the

i u
a

system, is in a sense the optimal one, since it maintains at least two distinctions within each pair of two vowels. The distinction

maintained here between palatal and velar high vowels must precede the distinction between palatal and velar low vowels (æ/a), between rounded and unrounded narrow palatal vowels (y/i), or between rounded and unrounded velar vowels (u/ɨ). The y/i distinction must precede that between rounded and unrounded wide palatal vowels (œ/æ).

Jakobson also cites a common fourth vowel system:

i u
e
a .

This system can also be described using the suggested processes. Just as it is for the

i u
a

system, neutralization is suppressed. The color rules, the lowering rule, and the depalatalization and unrounding rules may apply, but the raising rule is limited to

V
-High → higher
+Rnd .

Tracing the phonological development of a child, and suggesting how the processes might account for the substitutions made is another way of establishing the appropriateness of the rules proposed. The speech of two children will be observed here.

b. Joan Velten's speech.

Joan Velten's first words (Velten 1962, 25 et passim)--from the end of her eleventh month through her fourteenth month--contained only one vowel, a. This situation represents the operation of all the processes.

Joan's first distinction is the high- vs. -low distinction separating u from a. This is apparently accomplished by a limitation of the neutralization rule from

V
!-Stress → Neutral
!-Tense

to

V
!-Stress → -Pal
!-Tense .

The effect of the weakening of the structural change of this process is that the process now leaves the output

ɨ u
ʌ o
a ɔ

instead of ʌ alone. The neutral vowel, ʌ, is still lowered to a; the color rules provide that ɨ → u; and low-vowel unrounding substitutes

a for ɔ. Raising makes o → u, and the system is reduced to the two vowels, u and a.

Joan's substitutions give substance to this conjecture. The English low vowels and ʌ are articulated as a (as is ai by monophthongization), and the mid and high vowels become u. Allowing for some lack of fit between Velten's notation and that used here, the situation is, it seems: æ, a, ai, ɔ, ʌ, and ɛ (before liquids and nasals) → a; and ɪ, i, e, o, ə (possibly ɨ?), ʉ, u, iu, ɔi, ɔr, and ɔl (these last three labials), and ɛ (before obstruents) → u.

Acquisition of i may be due to limitation of the neutralization rule to unstressed syllables or to its complete suppression. Either way, the result is the three-vowel system

```
i   u
  a   .
```

The high front vowel is substituted for English i and e, and the rest of the substitutions are as before. In both the two- and three-vowel systems, it seems that the color rules operating are the stronger (6) and (8). Velten does tell us that Joan used a lax variant, ɪ, for the i vowel.

The rest of Joan's vowels were acquired after a considerable time, and all within the space of seven weeks. Her father says that their chronological order was e, ɛ, o, ɔ, æ, which seems to be approachable from the point of view of the suggested rules. Since he does not list these acquisitions as they were substituted for the English vowels, however, we can no longer trace the exact suppressions the child made.

c. Hildegard Leopold's speech.

A brief view of Hildegard Leopold's acquisition of vowels (Leopold 1953-54, 353 et passim) can also be described within the system of processes suggested, although the exact phonetic values would have to be examined to determine which substitutions made by the child were really context-free and which were allophonic variations conditioned by the context. Hildegard's first vowel was also a, and, like Joan's a, it replaced æ, ʌ, and a. Her second vowel was i (as opposed to Joan's u), with ɪ and y as allophones (y followed bilabials, with obvious assimilatory rounding).

The i suggests that Hildegard limited the neutralization rule to

```
 V
!-Stress  →  -Round.
!-Tense              .
```

Lowering, the color rule,

```
 V
-Rnd    →    +Pal
```

depalatalization and unrounding, and raising provide that æ, ʌ, and ɔ be replaced by a, and that other mid vowels and high vowels be replaced by i.

Then u was acquired, "briefly and experimentally," according to Leopold; the father thinks of e as Hildegard's third stable vowel. If u really was acquired before e, the development of the

i u
a

system would be similar to Joan Velten's. If, instead, e was indeed the third vowel and Hildegard's three-vowel system was

i
e
a

one could explain that raising was limited to +Round vowels before neutralization was entirely suppressed for stressed vowels. When this limitation of neutralization does occur, u appears, and the common

i u
e a

system is achieved.

Hildegard substituted u for "all standard high and mid back vowels," although a or even au was occasionally used to replace o. Her next acquisition was o--a result of the complete suppression of the raising rule. (The fact that o did not appear simultaneously with u indicates that raising had previously been limited only, not suppressed.) The ʌ vowel was not acquired until quite late, apparently because of the strength of the lowering rule, and because suppression of this rule forces a change from an essentially two-timbre to a three-timbre system.

There are some obvious flaws in the above tracing of the vocalic development of these two children. First, neither is complete, and the final systems described are not even identical, although both children were learning the same language. Second, no attempt is made here to deal with any variations in the representations to determine what forms are the results of context-free processes and what forms have been changed by their environments.

These two troublesome problems could probably be resolved, but a precise analysis would be a problem sufficient for another paper of this size, especially for Leopold's highly detailed description. My intention here has been to give a brief sketch which would illustrate how the rules suggested here can account for the systems of child language, and to show that implicational hierarchies like Jakobson's might be seen--considering that the child is actually making substitutions--as processes that are active in the child's phonological system.

2. Historical change.

If these observations are considered to be processes, then it is not surprising that they would turn up in the historical development of a language. It can be somewhat difficult to find evidence in historical language study for context-free vowel changes because

such changes often fail to leave internal evidence. Nevertheless, a good number of context-free changes have been reconstructed. These changes parallel the context-free processes described here, and they too may be seen as evidence that the implicational hierarchies might be described as actual processes.

In the view put forth by natural phonology, "rule addition" may be the failure of a generation or a group of speakers to suppress a process that is suppressed in the standard language. For example, in order for a language to admit an æ vowel, the low-vowel depalatalization process must be suppressed. The context-free historical change of æ to a, then, may represent the failure of a language group to suppress this depalatalization process. This change actually occurred in Middle English, when Old English æppel, for instance, became appel (Wright 1923, 19).

In Early Modern English this change was reversed (a far less usual circumstance), and a > æ, so that ME appel became our "apple" (Wright 1924, 38). This change could be described in terms of the suppression of low-vowel unrounding, with the consequent application of

$$\begin{matrix} V \\ -Rnd \\ !lower \end{matrix} \rightarrow +Palatal$$

I would assume that this palatalizing process had been overridden (for low vowels), in the system with a, by low-vowel depalatalization, which is ordered after palatalization. Suppression of the later depalatalization process allows palatalization to appear.

The parallel changes of ɔ to a and a to ɔ are also represented historically. English "not" ([nɔt]) has become American [nat], and the set of processes which generate the Yiddish system has produced such forms as [nɔx] from Middle High German nach (Sapir 1915, 257). As the æ/a changes represented operation or suppression of low-vowel depalatalization, these ɔ/a changes represent the operation and suppression (respectively) of low-vowel unrounding. (Suppression of low-vowel unrounding in Yiddish was accompanied by rounding of the non-palatal low vowels, which the unrounding process had previously overridden.)

The Color processes may be operated and their operations may vary to change in various ways the uncolored vowels and the doubly-colored vowels in the world's languages. The +High, -Palatal, -Round vowel, ɨ, for instance, may become either i or u in the course of an historical change. In order for ɨ to exist in a language, both

$$\begin{matrix} V \\ -Pal \end{matrix} \rightarrow +Rnd \quad \text{and} \quad \begin{matrix} V \\ -Rnd \end{matrix} \rightarrow +Pal$$

must be suppressed. The pattern of the change which eliminates ɨ depends on which of the two is no longer suppressed (and thus operates on ɨ).

In Southern Welsh (Bowen and Jones 1960, 12), for example, the innate process

$$\begin{matrix} V \\ -Rnd \end{matrix} \rightarrow \quad +Pal$$

was not suppressed and thus *i̱ > i. In the Mundlipada dialect of Remo, a Munda language (personal communication, David L. Stampe), on the other hand,

$$\begin{matrix} V \\ -Pal \end{matrix} \rightarrow \quad +Rnd$$

was not suppressed and *i > u.

There are numerous examples of the unrounding of palatal vowels:

$$\begin{matrix} V \\ +Pal \end{matrix} \rightarrow -Rnd \quad .$$

Yiddish, with

$$y \rightarrow i$$
$$ø \rightarrow e$$

is one of the most familiar instances (Sapir 1915, 259-260). Here MHG mul > Yid, mil, "mill;" and MHG hörner > Yid. herner, "horns."

A good example of the kind of subprocess hierarchy denoted by the degree-feature "lower," is a comparison of this Yiddish change with one that occurred in Old English (Wright 1923, 32), where ø > e but not y > i. In Yiddish, the change followed the most general form of the process,

$$\begin{matrix} V \\ +Pal \end{matrix} \rightarrow \quad -Rnd$$

In Old English, the process was limited to

$$\begin{matrix} V \\ +Pal \\ -High \end{matrix} \rightarrow \quad -Rnd$$

as favored by the "!lower" specification in the process as originally presented.[8] This subprocess operation is parallel to the operation

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[8]It might be noted here that English later underwent a generalized form of this unrounding when Middle English ø (< eo) > e and the original y > i (Wright 1923, 29-30).

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of subprocesses in the generation of systems with high front rounded vowels but no mid or low front rounded ones.

CHAPTER IV

PROBLEM AREAS: SOME OBSERVATIONS

A. Diphthongization, Monophthongization and Vowel Shifts.

1. Diphthongization and monophthongization.

Strictly speaking, the processes suggested here do not attempt to account for diphthongization and monophthongization. Such occurrences may be controlled by natural processes, and these processes may be related to the ones suggested here for simple vowels, but I have not examined diphthongs sufficiently to state what their controlling processes may be.

Such a study might be interesting, though, because it is possible that diphthongization and monophthongization are responsible for some of the changes which cannot be accounted for by the processes suggested here. A change like u → y might actually be the result of a series of processes involving diphthongization and monophthongization: u → uw → ɨw → iw → y. Similarly, in a diphthongization without monophthongization, i → ai might be the result of i - ii → ɨi → ʌi → ai. This is not meant to suggest that such historical changes are necessarily gradual, but simply that they may be accounted for by a series of processes that need not be directly counter to the ones suggested here.

2. Vowel shifts.

Conspicuous by their absence from the above material, perhaps, are vowel shifts. I have left these for a separate section because they are not entirely accounted for by the processes as suggested.

Frequently these chain-reaction changes in vowel systems are "set off" by an occurrence, such as diphthongization, that does not fall within the province of these processes, or by a process which, though it may be accounted for by these rules, is marked as extremely weak, or even by a change (e.g., u → y) that completely controverts the processes as written.

For example, in the Sao Miguel dialect of Portuguese, a vowel shift involving raising of the non-palatal vowels and rounding of a was begun, according to King (1969a, 17) with the change u > y, a change not accounted for in the suggested framework. The changes that followed can be described by the rules, however. Raising provides that o > u and ɔ > o. Low-vowel unrounding, which was already suppressed in the language (as evidenced by the presence of ɔ) remained suppressed, and the color rule

$$\begin{matrix} V \\ -Pal \\ !-Low \end{matrix} \rightarrow \quad +Rnd$$

was allowed to operate on low vowels, so that a > ɔ.

The English vowel shift, under a similar interpretation, would have been touched off by the diphthongization of i to ei (through ii) and u to ow (through uw).

B. Counter-examples.

An instance of the kind of apparent counter-example which can be accounted for fairly easily within the suggested system is the lowering, in Sanskrit, of e and o to a (T. Burrow 1965, 103 et passim). This may be described in terms of the neutralization and lowering processes, which might be limited to

$$\begin{matrix} V \\ -High \end{matrix} \rightarrow \begin{matrix} -Rnd \\ -Pal \end{matrix}$$

(This is to some extent supported by the fact that a had the quality of an ʌ), and

$$\begin{matrix} V \\ Neutral \end{matrix} \rightarrow \quad +Low \quad .$$

More threatening counter-examples exist, however. A great number of American Indian languages have a solitary non-low back vowel represented as o, without having an u. The o may vary--freely or under stated conditions--with u or ʊ, but the nonlow back vowel is named o so frequently in studies of these languages that such naming can hardly be attributed to accident, or to perversity on the part of the people who describe them.

Several suggestions could be made as to the nature of such systems. One--that is many of these languages, the vowels are articulated with a peculiarly lax quality which may have something to do with the lowering of the highest possible back vowels--may, in fact, be in some way applicable to systems such as the

e ə o
a

of Upper Chehalis (Kinkade 1963, 181), but it does not explain the lowering of o when the vowel system still contains an i. Trubetzkoy notes (1969, 107) that in certain systems "the vowels of the back class are realized more openly than the corresponding front vowels," but he makes no generalizations about such asymmetrical systems.

In an article on Swedish vowel production, Lindblom and Sundberg (1969, 17) distinguish the u tongue position, which involves a humping-up of the tongue toward the soft palate or velum, from both the palatal and the retracted articulations of the other vowels.

This articulatory gesture might for some reason be disfavored in certain languages, so that a lowering u → o takes place and the raising o → u is suppressed.

Admittedly, the processes suggested here offer no real explanation for such systems (which have been largely ignored in studies of vowels and the constraints on vowel systems). There seems to be an as-yet-undiscovered process (perhaps a general lowering, especially of non-palatal vowels) at work, which is in some sense peculiar to this fairly large group of languages.

Finally, there are other occurrences, exemplified by some historical changes, which cannot be described precisely in terms of these processes. In some languages, the processes suggested here can be controverted, but here the suggested inventory can help to characterize the cost to the learner of these controversions. In others, the processes can operate in a kind of tangential manner which requires that, in a stronger-than-usual way, the vowel space must be regarded as a continuum.

Examples of such "tangential" operation are the unrounding of ʏ to e as occurred in Kentish (Wright 1923, 22) rather than to i, and the fronting or rounding of ɨ to e or o rather than to i or u as occurred in two different dialects of Sora (personal communication, David Stampe). Such occurrences may be related to an articulatory or auditory difference in height between i and y or ɨ, such that if y and ɨ are lower than i, it becomes possible for them to unround, to palatalize, or to round to become vowels lower than i.

It seems, then, that the processes are somehow sensitive to the precise phonetic shape that a segment takes in a language. This may seem strange because, in another sense, the processes control the shapes of segments, but the occurrences noted seem to indicate that it is true to some extent.

CHAPTER V

CONCLUSION

The conclusions to be drawn from the above discussion seem, at this point, to be fairly straightforward and to require little more than a brief summary. The preceding section has made all too obvious the intractability of certain systems and changes under the set of rules suggested. Perhaps some adjustments in the processes as described here are necessary, or perhaps the intractable systems and changes require certain language-particular context-free rules (learned rules) in addition to the natural processes suggested here. It is also possible that some of these problems could be resolved with the addition of processes (such as those affecting length or tenseness) that I have not dealt with here.

Nevertheless, the processes retain their appeal. They do characterize implications, both for vowels in a system (as $\phi \supset y$) and for changes operating in a language (as $\underline{y} \rightarrow \underline{i} \supset \underline{\phi} \rightarrow \underline{e}$). Finally, they do have the ability to account for substitutions made by children and by borrowing adults.

Supported by the evidence presented in Chapter III, then, these processes may well be part of a natural phonological system which represents certain intrinsic limitations of the speech capacity. Undoubtedly, the content and perhaps also the form of the processes, as formulated here, will require revision in the light of further study. What should emerge from this paper, at least, is that the principles governing possible phonological inventories can be identified with the processes themselves, and thus, ultimately, with the intrinsic character of the human speech capacity.

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